

The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

[The Mining Journal is Registered at the General Post Office as a Newspaper, and for Transmission Abroad.]

No. 2156.—VOL. XLVI.

LONDON, SATURDAY, DECEMBER 16, 1876.

[WITH SUPPLEMENT.] [PRICE SIXPENCE PER ANNUM, BY POST, £1 4s.]

MR. JAMES H. CROFTS, STOCK AND SHARE BROKER,
AND MINING SHARE DEALER,
No. 1, FINCH LANE, CORNHILL, LONDON, E.C.
ESTABLISHED 1842.

BUSINESS transacted in all descriptions of MINING Stocks and Shares (British and Foreign), Consols, Bonds (Foreign and Colonial), Railways, Miscellaneous, Insurance, Assurance, Telegraph, Shipping, Canal, Gas, Water, and Dock Shares.
BUSINESS negotiated in Stocks and Shares not having a general market value.
BUSINESS in COLLIERIES and IRON Shares, and in the principal WAGON and MANUFACTURING COMPANIES of the NORTH of ENGLAND and SCOTLAND.
BUSINESS in all the principal COTTON SPINNING Shares.
Mr. J. H. CROFTS, having now established CORRESPONDING AGENCIES in all the Chief Towns of the United Kingdom, is prepared to deal in the various LOCAL Stocks and Shares at close market prices.

Accounts opened for the Fortnightly Settlement.

Monthly and Daily Price Lists issued.

Bankers: City Bank, London; South Cornwall Bank, St. Austell.

SPECIAL DEALINGS in the following, or part—
5 Altam, £5. 5 East Pool, £12.
25 Aberdunham, 12s. 6d. 25 Flagstaff, 25s. 9d.
20 Asheton, £14. 10 Frontino, £14.
20 Bamfylde, 12s. 9d. 10 Glyn, £23.
10 Belstone, 10 Great Laxey, £20.
10 Bilson, £7. 50 Gt. West Van, 8s. 6d.
20 Colorado, 20s. 20 I. X. L., 20s. 3d.
25 Cathedral, 25s. 20 Javal, 11s. 9d.
1 Carn Brea, £42. 20 Lawes Chemical (offer wanted).
15 Cedar Creek, 12s. 20 Llanrwst, £22.
25 Chapel House, £3. 20 Marke Valley, 30s. 6d.
10 Cardiff & Swansea, 35s. 15 New Cook's Kitchen, 37s. 6d.
10 ditto Deben, £9. 25 North Laxey, 12s. 6d.
50 Chontales, 8s. 25 New Shariston, Pref., £4.
5 Dolcoath, £40. 15 Newport Aber., £5.
100 Derwent (offer wntd.) 20 Postarene, 4s. 6d.
15 Devon Consols, £4. 50 Parys Mount, 12s. 6d.
30 Don Pedro, 7s. 6d. 50 Penstruthal, 10s.
20 East Van, £2. 10 Penmant, £1.
10 East Chiverton, 20 Pennerley, £1 5s.
20 East Caradon, 23s. 9d. 10 Richmond, £9.
15 Exchequer, £2. 5 Wh. Crebor, £2.
20 Eberhardt, £9.

* Shares sold for forward delivery (one, two, or three months) on deposit of 20 per cent.

SPECIAL BUSINESS in POSITIVE ASSURANCE SHARES.

Business on hand in all the principal FIN, COPPER, and LEAD SHARES.

AQUARIUM, HOTEL, AND MISCELLANEOUS SHARES.—SPECIAL BUSINESS in Brighton Aquarium, Royal Westminster Aquarium, Latham Hotel, Inns of Court Hotel, Milner's Safe, Milford Docks, Newcastle Chemical, Lawes Chemical, West Cumberland Iron, North-Eastern Bank. JAMES H. CROFTS, 1, FINCH LANE, LONDON.

COLLIERIES.—BUSINESS in all the PRINCIPAL SHARES and DEBENTURES. JAMES H. CROFTS, 1, FINCH LANE, LONDON.

COTTON SPINNING SHARES.—These steady and remunerative securities (comparatively little known on the London Market, but largely invested in by the manufacturing districts) can be bought at the present time at unusually favourable prices to pay good dividends on the capital invested. The following Shares (Oldham Mills) are amongst the safest and best of their class:—
Name of Mill. Nom. amount. Last quarterly dividends. Closing quotations.
Central Spinning ... £ 5 ... £2 10 0 ... 30, 26 20, 10 ... £ 2 3/4, £ 4
Greengates ... 5 ... 0 0 ... 30, 30 20, 5 ... 5, 6 1/4
Green Lane ... 50 ... Fully paid ... 30, 25 30, 25 ... 80, 85
Keyton ... 5 ... 2 0 ... 35, 30 20, 10 ... 2 3/4, 3 1/4
Rshaw ... 5 ... 2 10 0 ... 12 1/2, 20, 10 ... 2 3/4, 3 1/4
Rtar ... 5 ... 2 10 0 ... 17 1/2, 25, 20 ... 2 3/4, 3 1/4
Twist ... 20 ... Fully paid ... 5, 32 1/2, 13 ... 20 1/2, 25 1/2
Windsor ... 5 ... 2 10 0 ... 30, 26 20, 10 ... 3 1/4, 3 3/4
* The accounts of all the above companies are made up and profits divided quarterly. JAMES H. CROFTS, 1, FINCH LANE, LONDON.

FOREIGN BONDS.—ARGENTINE—EGYPTIAN—RUSSIAN, SPANISH, TURKISH. SPECIAL BUSINESS, and latest information. JAMES H. CROFTS, 1, FINCH LANE, LONDON.

RAILWAYS.—SPECIAL BUSINESS. Fortnightly accounts opened on receipt of the usual cover. JAMES H. CROFTS, 1, FINCH LANE, LONDON.

LEADHILLS (LANARKSHIRE).—SPECIAL BUSINESS in these Shares. JAMES H. CROFTS, 1, FINCH LANE, LONDON.

PANDORA MINE (LEAD—CARNARVON).—SPECIAL BUSINESS in these Shares. JAMES H. CROFTS, 1, FINCH LANE, LONDON.

MR. WILLIAM H. BUMPUS, STOCK AND SHARE BROKER,
44, THREADNEEDLE STREET, LONDON, E.C.
[Established 1867.]

SPECIAL BUSINESS, at close prices, in the SHARES of all the principal HOME and FOREIGN MINES.

Mr. BUMPUS directs particular attention to MINING INVESTMENTS, and is in a position to give reliable information and advice respecting the same.

FOR SALE, at prices annexed:—
50 Argentine (Gold), 50 Frontino, 30s. 6d. 15 Richmond, £9.
50 Blue Tent, 70 G. West Van, 9s. 30 Rookhope, 18s. 3d.
50 Cordes de Chili, 10 I. X. L., 21s. 6d. 20 Tankerville, £8.
50 Devon Consols, £4. 25 Kapanga, £4. 10 Van, £3.
50 Derwent, £4. 15 Leadhills, £9 10s. 3d. 25 Van Consols, 38s.
50 East Caradon, 26s. 6d. 40 Marke Valley, 32s. 20 Wheel Grenville, 25s.
50 Exchequer, 41s. 6d. 20 Penstruthal, 10s. 20 Wheel Agr, 45s.
5 East Van, £9. 20 Pennerley, 24s. 6d. 10 Wye Valley, £9.
10 Eberhardt, £8. 70 Parys Mount, 12s. 25 West Tankerville.

IMPORTANT. To Capitalists, and all who seek SOUND and PROFITABLE INVESTMENTS, the following are particularly recommended, and are worth the SPECIAL ATTENTION of every Investor, viz.:—

ARGENTINE COMPANY (LIMITED).
CONDENSED COMPANY OF CHILI (LIMITED).
BLUE TENT HYDRAULIC GOLD MINES (LIMITED).

The regularly published Reports from the above are sufficiently remarkable in themselves, and clearly prove the extraordinary value of the Properties. These are NO SPECULATIONS, but SOUND INVESTMENTS of unusual merit, and, as such, they will shortly occupy very prominent positions in the Market. The Shares are certain to have a great rise, and large Dividends may be confidently expected at an early date. Intending Investors should, therefore, secure an interest at once. Full particulars of the Mines, and every information concerning the several Companies, may be obtained on application to Mr. BUMPUS, who has special facilities for dealing in the shares.

WILLIAM HENRY BUMPUS, SWORN BROKER.
Office: 44, Threadneedle Street, London, E.C.

Business transacted in Stock Exchange Securities and Miscellaneous shares of every description. Fortnightly accounts opened. References given and required when necessary. A Stock and Share List forwarded free on application.

BANKERS.—THE NATIONAL PROVINCIAL BANK OF ENGLAND, E.C.

MR. GEORGE BUDGE, STOCK AND SHARE DEALER, 4, ROYAL EXCHANGE BUILDINGS, LONDON, E.C. [Established 25 years], is a BUYER and SELLER of the NORTH CORNWALL (LIMITED) Shares, and Intending Investors should communicate with him.
SPECIAL BUSINESS in Exchequer, Santa Barbara, Wheel Jane, Unity Wood, South Finance, Talylbot, Balmynheer, Cakemore Colliery, Chapel House, East Chiverton, Bodidris, Cedar Creek, Llanrwst, and Combmartin. Special business in this most promising lead mine. See specimens at the office of the company.

DIVIDEND LEAD MINE INVESTMENTS,
PAYING 8, 10, TO 12 PER CENT. PER ANNUM ON PRESENT PRICES: and
10, 20, 50, TO 75 PER CENT. PER ANNUM ON CAPITAL OF COMPANIES.
EVERY information respecting HOME and FOREIGN LEAD MINES and SHARES may be obtained of—
MESSRS. PETER WATSON AND CO.,
STOCK AND SHARE DEALERS,
54, OLD BROAD STREET, LONDON, E.C.

MR. ALFRED E. COOKE, STOCK AND SHARE DEALER,
76, OLD BROAD STREET, LONDON, E.C.
[Established 1853.]

Transacts every description of Business in ENGLISH FUNDS, RAILWAY STOCKS, and MISCELLANEOUS SHARES.
SPECIAL ATTENTION GIVEN TO MINING ENTERPRISE.
TRADING COMPANIES' SHARES (including COTTON SPINNING) dealt in at close prices.
COLLIERY SHARES dealt in on best terms.
SHARES in NEGLECTED and DEPRESSED SECURITIES dealt in.
Every description of STOCKS and SHARES, either for INVESTMENT or SPECULATION, BOUGHT and SOLD at net prices.

1877.—SAFE AND LUCRATIVE MINING and other INVESTMENTS, to yield about TEN PER CENT., with a prospect of a great rise.
MINES—LEADHILLS and PANDORA SHARES. SPECIAL BUSINESS and EXCLUSIVE INFORMATION.
COLLIERIES.—CAKEMORE, CHAPEL HOUSE, AND OTHER COLLIERIES DEALT IN AT CLOSEST PRICES.
RAILWAYS, FOREIGN STOCKS, &c.—HOW TO ACT. Speculative accounts opened on receipt of usual cover.

NOTICE.—SPECIAL TO CLIENTS AND OTHERS. The price of the SPECIAL INVESTMENT CIRCULAR (published on the 1st of every month) will be reduced on the 1st of January, 1877, to 6d. per copy, annual subscription to 5s., gratis to clients and correspondents. Every client who wishes to receive a copy regularly is particularly requested to notify the same at once to—
MR. ALFRED E. COOKE,
76, OLD BROAD STREET, LONDON, E.C.

MR. JAMES STOCKER, STOCK AND SHARE BROKER,
2, CROWN COURT, THREADNEEDLE STREET, LONDON, E.C.
[Established 1848.]

BUSINESS transacted in all kinds of STOCK EXCHANGE SECURITIES, also in every description of BRITISH and FOREIGN MINING, COLLIERY, MANUFACTURING, and other SHARES.

SPECIAL BUSINESS in the following:—
Leadhills, £9. 5. Pennerley, 24s. 6d.
East Van, £8 3s. 9d. Rookhope, 17s. 6d.
Tankerville, £8. 5. Penstruthal, 9s. 6d.
Great Laxey, £20. 5. Ladywell, 31s.
Roman Gravel, £14. Cathedral, 28s. 6d.
Derwent, £3 18s. 9d. North Laxey, 12s.
Pennant, £5. 5. Van Consols, 37s. 6d.
Devon Consols, £4 11s. 6d. Glyn, 33s. 6d.
Van, £38. 5. Parys Mountain, 11s. 6d.
Wheel Pevor, £3. 5. Marke Valley, 28s. 9d.
Chapel House, £3. 5. West Tankerville, 35s.
So. Condurow, £7. 5. Phosphate Sewage.
Javal, 12s.
Eberhardt, £8. 5. Port Phillip, 12s. 6d.
Frontino, 32s. 6d. Chontales, 8s.
Exchequer, 41s. 6d. Malpas, 15s.
Flagstaff, 25s. Cedar Creek, 15s.
Chicago, £6. 5. Alma, 4s. 6d.
N. Zealand Kapan., £4. 5. Tecoma, 9s. 9d.

JAMES STOCKER, SWORN BROKER. Consols, Foreign Bonds, Railways, Bank, Telegraph, Gas, and all miscellaneous Shares bought and sold, and fortnightly accounts opened for same. Shares sold for forward delivery on receipt of cover. List of prices and every information for sale on application. References given and required when necessary.

MESSRS. W. J. TALLENTIRE AND CO., STOCK AND SHARE BROKERS,
20, CHANGE ALLEY, CORNHILL, LONDON, E.C.

Transact business in Stock Exchange Securities and Mining Shares of every description, either for immediate cash or the usual bi-monthly settlements, and also afford advice personally or by letter to executors, trustees, capitalists, and investors of every class in the selection of Securities for safe and profitable investment, their experience of the markets, extending over a period of more than sixteen years, together with special facilities for acquiring information, enabling them to act beneficially for clients.
They have established Corresponding Agencies in all the principal towns of the United Kingdom, and are prepared to deal in the various local Stocks and Shares at close prices. Orders per post or telegraph receive prompt attention.
INVESTORS SHOULD APPLY for a copy of Messrs. W. J. TALLENTIRE and Co.'s Circular, SENT POST FREE. It contains valuable information on Foreign Stocks (especially South American, Egyptian, and Turkish), Railways, and Lead Mines.

JOHN RISLEY (SWORN), STOCK AND SHARE BROKER,
35, CORNHILL, LONDON, E.C.
Established 18 Years.

References required with new business, or part payment in cash with orders. Business transacted at the following rates of commission:—Foreign Stocks, 1/2 per cent.; and Mining Shares of £4 each and upwards, 1 1/2 per cent.; under £4, 1s. per share.

SPECIALLY RECOMMENDED:—Parys Mountain, Wheel Crebor, West Chiverton, Santa Barbara, and Wheel Grenville.

MESSRS. ENDEAN AND CO., STOCK AND SHARE DEALERS, 85, GRACECHURCH STREET, LONDON, E.C.

"BALLOT-TONTINE."

MESSRS. SEYMOUR AND SMITH, 171, QUEEN VICTORIA STREET, LONDON, E.C.

PROPRIETORS AND PROMOTERS OF THE "BALLOT-TONTINE" SYSTEM (REGISTERED).
Beg to announce to Owners of Property, and others desirous of forming Limited Liability Companies ON A SOUND BASIS, that they are prepared to give every facility, by personal advice and otherwise, for the general adoption of the "Ballot-Tontine System."

JOSEPH JOHN PYNE, MINING BROKER,
STOCK AND SHARE DEALER,
6, BISHOPSGATE STREET LONDON, E.C.

Mr. PYNE having been connected with MINING ENTERPRISE for upwards of FORTY-SEVEN YEARS, and having been a DIRECTOR of MINES in SHROPSHIRE, MONTGOMERYSHIRE, CARDIGANSHIRE, CARNARVONSHIRE, YORKSHIRE, and in VENEZUELA, has had great opportunities of becoming acquainted with this particular branch of industry, and will always be desirous of giving every information in his power to all Investors transacting business with him.

ALL DESCRIPTIONS OF SHARES are dealt in, including BRITISH and FOREIGN STOCKS, and RAILWAY SECURITIES.

BANKERS.—THE ALLIANCE BANK (LIMITED).

MR. CHARLES THOMAS, MINING AGENT, STOCK AND SHARE DEALER,
3, GREAT ST. HELEN'S, LONDON, E.C.

MESSRS. A. W. THOMAS AND CO., 10, COLEMAN STREET, E.C.
MINING AGENTS, AND STOCK AND SHARE DEALERS.
BUYERS of Miners, South Condurow, and West Godolphin Shares.

GROGWINION LEAD MINE (LIMITED).
MESSRS. H. HALFORD AND CO., STOCK AND SHARE BROKERS, OF EXCHANGE CHAMBERS, CHANGE ALLEY, LOMBARD STREET, LONDON.

Strongly recommend the ABOVE MINE as one of the BEST and SAFEST MINING INVESTMENTS. The dividends are declared half-yearly—the one for the last half year was 12 1/2 per cent.; the next one will probably be 20 per cent. The "reserves" are valued at £300,000. Every information upon application to the above.

Daily Closing Price Lists of Mines and all other Securities sent post free on application.

Messrs. H. H. and Co. are BUYERS of Shares in GROGWINION MINE, and also of Shares in WYE VALLEY LEAD MINE; and they will be GLAD TO HEAR from BROKERS or DEALERS who have ANY FOR SALE.

NOTICE.
BROKER OR DEALERS HAVING SHARES FOR SALE in either GROGWINION or WYE VALLEY MINES can FIND IMMEDIATE PURCHASERS on application to—
H. HALFORD AND CO.,
STOCK AND SHARE BROKERS,
EXCHANGE CHAMBERS,
CHANGE ALLEY, LOMBARD STREET.

MR. EDWARD ASHMEAD, 62, CORNHILL, LONDON, LONDON MINING AGENT, ACCOUNTANT, AND AUDITOR.

Purchases and Sales of Mining Shares effected, and information given on Mines and Mining personally or by letter. Mr. ASHMEAD has been constantly engaged in Mining since 1856. British Mining Stock, in good concerns, should be purchased now, prices being low. Home Securities will rise.

MR. T. E. W. THOMAS, SHARE BROKER, 3, GREAT WINCHESTER STREET BUILDINGS, E.C.

Established 1857.
The following are the latest prices at which business could be done. Where the difference between the buying and selling price is wide transactions may be effected at an intermediate price:—

Buyers.	Sellers.	Buyers.	Sellers.
Bodidris ... £ 1 ... 1 1/4	Penstruthal ... 9s. ... 11s.	Plympton ... 5s. ... 6s.	Princes of Wales ... 3s. ... 5s.
Derwent ... 3 1/2 ... 4 1/4	Prince of Wales ... 3s. ... 5s.	Richmond (ex div.) ... 9 ... 9 1/2	Roman Gravel ... 13 1/2 ... 14
Devon Great Consols ... 4 1/2 ... 4 3/4	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.
Don Pedro ... 7s. ... 8s.	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.
Eberhardt ... 5 1/2 ... 6	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.
East Caradon ... 5 1/2 ... 6	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.
East Van ... 9 ... 9 1/2	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.
Exchequer Gold ... 1 1/2 ... 1 3/4	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.
Flagstaff ... 1 ... 1 1/4	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.
Frontino ... 1 1/4 ... 1 1/2	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.
Glenroy ... 1 1/2 ... 1 3/4	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.
Glyn ... 2 1/2 ... 2 3/4	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.
Great Laxey ... 10 1/2 ... 10 3/4	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.
Javal ... 10s. ... 10 1/2	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.
Ladywell ... 1 1/4 ... 1 1/2	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.
Leadhills ... 6 1/2 ... 6 3/4	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.
Marke Valley ... 1 1/4 ... 1 1/2	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.
North Laxey ... 10s. ... 10 1/2	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.
New Quebrada ... 3 1/2 ... 3 3/4	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.
New Zealand Kapanga ... 4 1/2 ... 4 3/4	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.
Parys Mountain ... 10s. ... 10 1/2	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.
Pennant ... 5 ... 5 1/2	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.
Pennerley ... 1 1/2 ... 1 3/4	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.	Rochdale ... 17s. ... 18s.

MR. WILLIAM WARD, CROSSBY HOUSE, 55, BISHOPSGATE STREET WITHIN, E.C., STOCK AND SHARE BROKER.

FERDINAND R. KIRK, STOCKBROKER, 5, BIRCHIN LANE E.C.

SPECIAL BUSINESS in the following:—
COLLIERIES.—Bilson, Altam, Cardiff, Chapel House, Newport Abercarn, Thorp's Gawber.

MISCELLANEOUS.—Milner's Safe, Hooper's, Pawson, Hudson Bay, Diamond Rock, Tramway Companies.

MINING.—Cedar Creek, Don Pedro, Gold Run, Rookhope Valley, Pennant, Pateley Bridge.

Fortnightly Accounts opened on the usual terms; one or two good opportunities at the moment.

Bankers: London and Westminster, Lothbury.

WILLIAM B. COBB, 62, CORNHILL, LONDON, E.C.
Bankers: The Alliance Bank.

Business transacted in every description of British and Foreign Stocks, Mining Shares, &c.

Fortnightly accounts opened in rails, foreign stocks, and mining shares.

VICTORIA (LONDON) MINING COMPANY (LIMITED).—£1 shares specially recommended, paying dividends at the rate of 16 per cent. per annum on present price.

MESSRS. J. TAYLOR AND CO., MINING ENGINEERS AND INSPECTORS,
86, LONDON WALL, LONDON, E.C.

Have Agents in England, Scotland, Wales, and on the Continent.

MR. THOMAS THOMPSON, JUN., 1, PALMERSTON BUILDINGS, BISHOPSGATE STREET, LONDON, E.C.

Mr. THOMPSON strongly recommends the purchase of the shares of the CHAPEL HOUSE COLLIERY COMPANY (LIMITED) for investment. This company, notwithstanding the stagnation in trade, clears a profit of 2s. per ton on its coal, and when the new works are completed he present handsome returns will be much augmented.

MESSRS. ARTHUR JONES AND CO., STOCK AND SHARE DEALERS,
No. 7, NEW BROAD STREET, LONDON, E.C.

The "Investment Circular and Financial Record" for December may be had gratis and post free on application.

G. E. SIMPSON, STOCK AND SHARE DEALER, 6, GREAT WINCHESTER STREET BUILDINGS, LONDON, E.C.

MR. JORDAN has, on account of ill-health, RETIRED from the FIRM of HARVEY, JORDAN, AND CO., MINING ENGINEERS, ACCOUNTANTS, &c., of 57, MOORGATE STREET, E.C.

MESSRS. A. ENDEAN, FISHER, AND CO., STOCK AND SHARE DEALERS, 3, LOMBARD COURT, LOMBARD STREET, E.C.
Bankers: London and Westminster, Lothbury.

BODIDRIS LEAD MINING COMPANY (LIMITED). Capital £6,000, in £1 shares.
Messrs. ENDEAN, FISHER, AND CO. call particular attention to the prospectus of this company now issued; they are confident it is one of the best, and most substantial undertakings placed before the public.
The present prospects, and the discoveries made, are guarantees of its future prosperity. Those who wish to invest in one of the prizes of the day should communicate with us at once. Prospectus and map forwarded on application.
ENDEAN, FISHER, AND CO., 3, LOMBARD COURT, LONDON, E.C.
Bankers: London and Westminster, Lothbury.

**PUMPING WORK.—HAYWARD TYLER AND CO. KEEP IN STOCK, and LET OUT ON HIRE, STEAM PUMPING MACHINERY, with BOILERS, suction and delivery pipes, &c., complete. STEAM PUMPS, in stock, suited for lifts, from 15 ft. to 500 ft.
84 and 86, UPPER WHITECHURCH STREET, LONDON.**

In Twelve Monthly Parts, royal 4to, uniform with the Author's Treatise on Coal Mining, and, when complete, will contain about 180 plates, accurately drawn to scale, with descriptive text.

Part I, now ready, price Five Shillings.

MINING MACHINERY:

A DESCRIPTIVE TREATISE ON THE MACHINERY, TOOLS, AND OTHER APPLIANCES USED IN MINING.

By G. G. ANDRE, F.G.S., Assoc. Inst. C.E., &c.

LONDON: E. and F. N. SPON, 48, Charing Cross.

NEW YORK: 445, Broome-street.

Royal School of Mines.

PROF. SMYTH'S LECTURES ON MINING—No. LVIII.

[BY OUR SPECIAL REPORTER.]

STAMPS.—When we come to the picked varieties of ore which contain the valuable substance disseminated through a large quantity of stone, commonly associated with quartz or other non-metallic matter—the last group into which we consider we might divide the ore advantageously—we shall arrive at a class of substance which can no longer be comminuted by the ordinary crusher. There is only one instance in the whole of the tin mining districts of the West of England in which the crushing rolls can be applied to the purpose of tin dressing, and that on account of the peculiar character of the ore, which, generally speaking, was of large and coarse crystals—the mine of Drake Walls. In this case, however, it has disappeared within the last few years, and now all tin mines, the great majority of gold, copper, and lead mines, which have the substances disseminated through large quantities of material, have come back to the same apparatus—apparatus in which you do not depend upon a smooth and unbroken surface, and in which large quantities of the material can be pulverised at a small expense, in all of which respects no apparatus has yet answered the purpose like the stamps, or stamp mills. These stamps will form the subject of the present lecture, though to go into the matter fully would require a series of lectures. As seen in its simplest form you have in the stamps a strong, usually wooden, frame placed on an extremely firm foundation, within which three or four of these stamps-heads work, being raised from time to time by means of what we call lifters. The stamp consists of a head of cast-iron, rarely steel, weighing from 1 cwt. to upwards of 1000 lbs., and the lifter, or shank of wood or iron, from 9 to 12 ft. long, and strong enough to support the weight of the stamps-head. The stamps will be raised and allowed to fall through a height of from 8 in. to 1 ft., and the power, which may consist of a water-wheel, steam-engine, &c., will give rotary movement to a horizontal axis, or barrel, of cast-iron, on which is a series of cams, arranged in a certain order so as to raise the lifters, and with them the stamps-heads, by engaging with a tongue or projecting tappet on the lifter; always taking care to have a full weight on the axis, and yet not to overpower it. As regards the scale of this apparatus, you may not unfrequently see in some of the remote valleys of Cornwall a water-wheel 12 ft. to 20 ft. high, working three stamps-heads; on the other hand, you may often find 16 to 30 heads working, in some cases 60 to 80, while in some of the largest mines—Dolcoath, Carr Brea, Phoenix, &c.—100 to 150 stamps-heads are in use. These lifters are paralleled, if not exceeded, in the districts of Schemnitz and Kremnitz, and again as to weight, if not number, in the Australian, Californian, and Colorado districts.

We must now look at each of the parts of the apparatus separately, and will take first the lifter. In the earlier forms rectangular logs of wood, 4 in. by 5 in., or 5 in. by 6 in., and 9 ft. to 12 ft. long, were employed, but with increasing scarcity of wood and increased cheapness of iron it has come to pass in course of the last 30 or 40 years that the wooden lifters have been replaced to a great extent by wrought-iron. The bars used in this country are, as a rule, rectangular in section, sometimes square; in colonial districts cylindrical. An arrangement of this kind wants to be put into a very strong frame, which consists of a couple of uprights, or a series in case of a large number of stamps, connected by cross pieces, which keep the lifters in place, and which for convenience should be so arranged as readily to be taken off, that the stamps may be repaired when necessary. It will be seen that the nature of the lifting movement will cause the lifter to rub against these cross pieces as it is raised by the cam, and various methods have been proposed to lessen the friction and the wear. In some cases a small loose piece of wood is put between the cross piece and lifter, and kept well greased; but the usual method is to have grooves in the cross pieces, lined with hard wood, and triangular pieces of cast-iron screwed to the lifter, to move in the grooves. Where there are a great number of stamps-heads they are divided by the uprights into sets or batteries, each containing three or five heads, and working in a separate box, or "cofer," below. In such a case the moving power may be placed at one end of the series, or, as is often done, the engine is placed in the centre, and works an axle on each side. We come next to the head, and the weight of this will have to be proportioned very much to the nature of the material to be stamped. The weight must be greater for tough ore than for hard brittle quartzose rock. In the old copper mines the halvans used to be stamped with heads of not more than 3 cwt., the material being got rid of very rapidly.

A series of experiments were carried out many years ago in the mines at Schemnitz, which showed that it was desirable to employ heavier stamps-heads than those in use, and thus heads of 6 to 8 cwt. came to be employed; and all subsequent experience has confirmed the correctness of this result. The stamps-head is in the form of a parallelepiped of iron, with a more or less curved top, with a hole for the purpose of receiving the shank of the lifter, which is then welded in, and a couple of iron bands shrunk on. Sometimes, however, the lifter is suspended, with its end in the mould, at the time of casting the head, so as to embed it in the casting. In the mines of California and Australia a cylindrical form of stamp has been preferred, working on a cylindrical anvil of about the same size. The stamps-heads, even when made of the hardest cast-iron, are found to wear away so rapidly as to produce two great drawbacks. In the first place, the stamp loses so much of its weight that it no longer does its work with full efficiency; and, secondly, a large proportion of cast-iron is so mingled with the substance you have afterwards to dress as to give rise to a great deal of difficult to get rid of again. To avoid this many different plans have been proposed. Chilled iron is sometimes suggested, but generally it is not adopted, because although it gives you a shell of hard metal, yet the hardening is so irregular throughout the mass as to render it less suitable. Steel has been employed in some cases, but not with such success as to make it largely imitated. In the Californian mines they have adopted what appears to be a very good plan—that of a shoe fixed on to the bottom of the regular head, which can be renewed from time to time, and thus the head itself is not allowed to become worn. The upper part of the shoe has a conical process, which fits into a corresponding hollow in the under surface of the head, and is fixed by means of an iron band shrunk on hot at the junction. The castings for these heads are from 12 to 18 or 24 in. in length, weight from 2 to 8 cwt.; a large weight being added in the shape of the strong wrought-iron lifter.

The next point to be looked to is the contrivance for raising the weight. In the ordinary wooden lifter it was simply accomplished by having a slot 10 or 12 in. long in the lifter, into which a tongue was wedged. Of course, as the stamps-head wears away it falls lower and lower, so that the tongue falls out of place in time unless some means are adopted for regulating it. In this case the tongue is simply raised up in the slot, and the space beneath it is wedged up; this method, however, takes up considerable time. It is necessary that each of these sets should be cast separately, in order that one may at any time be detached for repairs, without interfering with the rest of the stamps. One or two examples may be seen where, for obviating the friction due to the rubbing of the cams on the tongues, small rollers have been placed on either cam, or tongue, but all such arrangements have failed, owing to the great strength required in dealing with such heavy weights. Another way of ac-

complishing this seems to have been successfully employed in Australia, where not only is the lifter a round iron bar with a cylindrical head, as mentioned above, but the tappet is also a boss of iron of a cylindrical character fixed on to the lifter by means of wedges. The tappet on the barrel is made in this instance much like the tooth of a cog-wheel, and is so placed as to lift the lid into a new position each time, by which means it is said you not only get a greater regularity of wear, but also a greater amount of work. The construction of the "cofer," or chest in which the stamps-heads work, may be seen in its simplest form, perhaps, in some of the small apparatus used in the gold districts of Eastern Europe. In Wallachia, for instance, you may see numbers of these small stamps, a small water-wheel working three or four heads, and the cofer being a simple strong wooden box, into which the gold stuff and the mercury (for amalgamation) are placed, and then the machinery allowed to work for several days.

In dealing with malleable material, such as gold, a prolonged action of the stamps beats it out into thin leaf, which is then floated away by the stream of water which is constantly flowing through the cofer. Experiments at Schemnitz showed that one-fourth, or even a larger proportion, was lost in this manner. As in cracking a nut with a steam-hammer the blow must be regulated so as just to break the shell and leave the kernel uncrushed, so with the stamps you require to give one such blow to a particle of the ore as shall suffice to break the surrounding material and set the kernel, as it were, free. The outlet of the cofer, therefore, must be arranged so that the same material may not be struck twice. The stuff passes into the cofer usually by means of a hopper with a sloping floor, down which the water may be allowed to trickle. A cross piece is sometimes attached to one of the stamps-heads, so as to strike the box, or hopper, when the head falls too low, and so shake down more material. Other kinds of arrangement may be adopted for a like purpose, or the general tremor of the whole apparatus may be of itself sufficient. In arranging the working of the head it is necessary, as we have seen, to diffuse the strain as much as possible. The question occurs in what order must the heads be taken up. They must be taken up in definite order, so as to have a definite rhythm, and it is desirable never to take up in succession two adjoining heads. Usually the head at one end is raised, then that at the other, and then the middle heads. A great deal might be said about the nature of the outlet: it must not be too small to allow the material to escape when sufficiently reduced. In the stamps formerly used at the copper mines the exit was formed by nailing a series of bars across an open side and the ends of the cofer, and then it was necessary to see that the spaces between the bars did not become clogged. A very good improvement was to have the exit at a somewhat higher level than the bed of the cofer, so that the water had to lift the material, thus ensuring its proper pulverisation before being allowed to escape. At the present day something in the shape of a punched plate of iron, with from 60 to 300 holes to the inch, is employed. It is impossible to say, *a priori*, what size of holes would be found most convenient for a given class of material. In other cases the water is allowed to run over the lip of the cofer, carrying with it the fully pulverised matter, and in order to prevent the flush, or swell, caused by the fall of the heads to a great extent, a sliding door is placed between the heads and the lip. The question arises as to what amount of work can be expected to be done by these machines. It is a difficult matter to compare the actual work of different stamps unless we know exactly the amount of comminution needed. But we may, perhaps, come to the conclusion that if the stamps-heads and lifters are of suitable weight, giving a sufficient number of blows—at the least 60 per minute for each head—and with ordinary material, something like 1 ton should be stamped in 24 hours by each head. By the side of this result all the grinding apparatus, except the crusher, fall into insignificance as to the amount of work they can do. In some of the American mines the quantity sometimes comes out as much as 2 tons, but we must remember that the openings in the cofer plate are larger than before mentioned. One case is recorded where with Cornish stamps of an extremely heavy character, each head weighing from 1000 to 1250 lbs., with lifters 12 to 16 ft., giving 60 blows per minute, as much as 3 to 4 tons were stamped in 24 hours, but we require more details as to the magnitude of the apertures, &c.

Other varieties of apparatus have been proposed from time to time, but none have as yet come into competition with the stamps just described. Varieties of the Nasmyth steam-hammer have been proposed—a heavy hammer weighing 4500 lbs., giving 84 to 90 blows per minute, connected directly with a steam cylinder. Another apparatus, which is not yet thoroughly perfected, is the pneumatic stamp. In this there is an air cylinder, 14 in. long, with holes towards the upper and lower parts of the sides for admission of the air; the cylinder is connected below with the stamps head. A piston in the cylinder is connected by means of a piston-rod passing through a stuffing-box in the top of the cylinder with a crank, the throw of which is only 10 in. The air in the upper part of the cylinder is compressed when the piston passes upwards, and thus it forms a considerable air spring, the effect of this is to raise the cylinder and stamps head; and although the throw of the crank is only 10 in., the head is thrown out as it were to a distance of 15 in. to 18 in. Similarly, as the piston descends it forms a second air spring in the bottom of the cylinder. The above dimensions refer to a 6-throw crank, working as many heads, this being the greatest number yet employed.

The only other point remaining to be noticed appears very simple, but, indeed, is not universally agreed upon—the nature of the bed on which the stamps ought to beat. In the American stamps described a circular iron anvil with a square base is used. In this country a cast-iron bed-plate sometimes forms the bed; in many other cases it is preferred to let the stamps beat their own bed, some of the hardest material for the veins being thus beaten down. It need hardly be said that all below the stamps must be as strong and firm as possible, and needs considerable care when you have not the solid rock to come down upon.

GEOLOGICAL SOCIETY OF LONDON.

Dec. 5.—Prof. P. MARTIN DUNCAN, M.B., F.R.S. (President) in the chair.

Messrs. Thos. Collinson, of the Elms, Southey, Sheffield; P. Lindsay Galloway, M.A., Ryton-on-Tyne; the Rev. George Middleton, of Bourne College, Summer Hill, Birmingham; S. H. Needham, Mecklenburg-street, Mecklenburg-square; Maskell Wm. Peace, of Ashfield, Wigan; Nathaniel Francis Roberts, Stamford Hill; and John Stirling, Montreal Hematite Iron Ore Works, Whitehaven, Ennismore Gardens, and Fairburn, Beaulieu, Ross-shire, were elected Fellows of the Society.—Messrs. Frederick Tendon, Kidbrooke-terrace, Blackheath, and David Thomas, Glanrafon House, Rhymney, were proposed as Fellows, and Dr. J. F. Brandt, of St. Petersburg, Dr. C. W. Gumbel, of Munich, and Prof. Edouard Suess, of Vienna, as Foreign Members of the Society.

The following communication was read:—

"On the Intrusive Character of the Whin Sill of Northumberland." By W. Topley, F.G.S., Assoc. Inst. C.E., Geological Survey of England and Wales, and G. A. Lebour, F.G.S., Lecturer on the Geological Surveying at the University of Durham College of Science, Newcastle-on-Tyne.

The carboniferous limestone series of the North of England contains a bed (or beds) of basalt, known as the "Whin Sill," regarding the nature of which opinion has long been divided. Some

writers regard it as truly interbedded and contemporaneous; others look upon it as intrusive, and as having been forced laterally between the planes of bedding. The latter opinion is that held by the authors, who stated that through South and Mid-Northumberland there can be no doubt as to the intrusive character of the Whin Sill. This conclusion can be established by the line of outcrop of the trap, and also by the evidence of individual sections.

A review of the literature on the subject was given by the authors, showing that the opinions of geologists are very much divided as to the nature of the Whin Sill. But amongst the practical miners of the North of England there are very few who will admit any doubt that the whin lies evenly, and at one constant horizon, amongst the strata. Clear cases to the contrary are looked upon as merely local variations, possibly due to successive eruptions of submarine lava. The Whin Sill serves them as a definite line, and the limestone next above it is always called the "Tyne Bottom Limestone." The question is thus of considerable economic importance. It is also of interest in reference to the volcanic history of Britain and to classification. Prof. Phillips took the Whin Sill as the base of the Yoredale series; the Great Limestone he regarded as its top. But the work of the Geological Survey has shown that the Whin Sill lies at different horizons in different places; sometimes it even lies above the Great Limestone itself. In other words the Whin Sill, which is supposed to mark the base of the Yoredale Series, sometimes lies above the limestone which forms the top of that series.

With the disappearance of the supposed base lines of the Yoredales goes also any good reason for drawing a line here at all. The so-called "Tyne Bottom Limestone" cannot be traced definitely through Northumberland, and the beds above and below this horizon have the same general character.

The authors traced the Whin Sill through Northumberland, as far north as Dunstanburgh Castle, showing the varying positions at which it occurs in the limestone series, and noting points of interest in some of the sections. The whin shifts its position amongst the strata to the extent of 1000 ft. or more. It frequently comes up in bosses through the bedded rocks, and bakes the beds above it quite as much as those below, especially when those beds consist of shale.

As to the age of the Whin Sill, nothing definite can be said. It is frequently thrown by faults and lodges. There is no certain case of its being unaffected by faults which throw the neighbouring rocks, although there are a few doubtful cases which seem to point in this direction. As the Whin Sill does not approach the Permian area of Durham, the fact that some of the faults there are believed to be pre-Permian cannot be applied as a test of age in this case.

In other districts in Britain in which intrusive basaltic sheets occur amongst the carboniferous rocks, there is good reason to believe that in most cases they are pre-Permian, or at least pre-Triassic. Whether or not this be the case with the Whin Sill cannot be determined. No light is thrown on this question by the composition of the rock. Mr. Allport has shown that it resembles, in all essential characters, the basalts of other carboniferous districts, some of which are possibly contemporaneous, some certainly intrusive.

Mr. WARINGTON W. SMYTH said that he had gone over the district referred to in the paper with Mr. Blackwell, the geologist who first determined the intrusive character of the green-and-white rock in the neighbourhood of Dudley. Mr. Blackwell was also, he believed, the first to demonstrate the intrusive nature of the Whin Sill of Northumberland. It appeared to be a great intruded tongue, not quite horizontal, but approximately so; and it was interesting to see the evidence brought forward by the authors proving its occurrence at various horizons.

Prof. HUGHES thought that the intrusive character of the Whin Sill was proved in the section seen in Hicup Gill and elsewhere along the same escarpment, as the rocks were altered above and below it, and were seen to be traversed obliquely by it in such a manner as could not be explained simply by the thinning out of the sedimentary deposits. He thought that the Brockram and other New Red deposits of the Eden Valley were the shore deposits of the sea further out, in which sooner or later the magnesian limestone of the district west of the Pennine range was formed; that, whatever may have happened in earlier times, there was certainly a great faulting after the deposition of the Lower New Red, so that the cliff with the Whin Sill exposed in it did not exist there when the conglomerates known as Brockram were formed; that the beds into which the whin is intruded do not occur on the south-west of the Brockram, though it may be that beds of the same age, but very different in character, may occur further north beyond the main mass of Brockram; that the Brockram now exposed was derived chiefly from the mountain limestone further west, so that the absence of whin in it goes for nothing; that there is no evidence to show whether or not the whin has an outcrop under the New Red or runs into it; and on the whole, except we identify it with the dykes which run across the Jurassic rocks to the east, there is nothing proved in that district respecting its age except that it must be later than the Lower Carboniferous.

Mr. LEBOUR said that Prof. Hughes was right with regard to the absence of the Whin Sill in the southern extension of the western Yoredale rocks. The alteration produced by the Whin Sill differed according to the kind of rock affected by it; and the difference was probably due to the different conductivity for heat of the various rocks.

Messrs. Bartholomew Parker Bidder, mineral engineer, Warrack Road, North; Robert Wm. Cheadle, Leamington-road Villas; David Grievie, F.R.S.E., Edinburgh; Playter Isaac, of Hinton Abbey, near Bath; James Love, F.R.A.S., C.E., Talbot Lodge, Bickerton-road, Upper Holloway; Kerry Nicholls, Bedford place, Russell-square; William Ridley, C.E., Natal Government Railways, Natal, South Africa; Wm. Joseph Spratling, F.C.S., Wickham-place; and George Blake Walker, Silkstone Coal Company, Wortley, near Sheffield, will be ballotted for as Fellows of the Society.

The meeting will be made special for the election of a new member of council and a new secretary, in the room of the late David Forbes, Esq., F.R.S.

SOUTH STAFFORDSHIRE AND EAST WORCESTERSHIRE INSTITUTE OF MINING ENGINEERS.

An ordinary meeting of the members of this Institute was held on Thursday, at the Midland Institute, Birmingham.—Mr. THOMAS LATHAM, President, in the chair. In the reading of the Council minutes it was shown that Mr. Alexander Smith, C.E., secretary, having suggested and spoken of the advantages of a reference library, Mr. Henry Johnson proposed, and Mr. Brettle seconded, a proposition that a reference library should be formed in connection with the Institute by the purchase of works applicable to mining with sums voted at different periods by the Council, by presentation, and by books, papers, and drawings by members and others. This had been carried unanimously. A letter was received from Mr. J. P. Baker, the Government Inspector, calling the attention of the members to the St. John's ambulance as a very desirable conveyance.—The SECRETARY explained that he had brought the matter before the Institute more than 12 months ago. It was resolved that Mr. Alexander Smith should write to Mr. Baker acknowledging his letter, and enclose for his inspection a copy of the society's "Transactions," at the same time inviting him to become an honorary member of the Institute.—Mr. Latham then nominated Messrs. Peacock and North (ex Presidents) as scrutineers for the votes at the forthcoming elections.—The President also nominated Messrs. Hayward and Rogers as auditors.

Mr. Alexander Smith, C.E., then read the following:—

SIMPLE BUT IMPORTANT FACTS IN SCIENCE TOO OFTEN OVERLOOKED.

Some of you will no doubt anticipate from the title of this paper that the secretary is going to air some new fangled notions, or far-fetched theories of his own, or recapitulate a lot of dry elementary details which can be found in text books of science. Such, I assure you, is not the case, but I intend, if possible, to show how men too often, either from want of knowledge, or from lack of attention, and not attaching sufficient importance to simple scientific or natural facts, go woefully astray, frequently wasting their lives and fortunes

in seeking after shadows. I was induced to string together these few remarks upon going through (for the purpose of editing the Transactions) the papers read before the Institute this year. In one of these papers I found statements laid down as facts which must be false, they being entirely contrary to the laws of Nature; I would not for one moment assert that the writer of the paper in question intentionally wished to deceive, as I am convinced he thoroughly believes all he has stated, yet I think it is my duty as your secretary not to let such statements go forth to the world in our Transactions unquestioned, when I can explain and prove them fallacious, as we should only be held up to ridicule by those who know better, and our young members might be misled. I publicly questioned the statements when they were made, although for want of thought some of our leading members said they believed them, and I also had, privately, some long arguments with the writer of the paper, who said he would bring a model practically illustrating what he had adduced. I was waiting for some such opportunity for going into the question before the Institute, but as it has not come I think I cannot let the year close and the statements go forth without considering the subject. It has been far from an uncommon thing for ingenious and clever men to waste their time and money in trying to discover or accomplish impossibilities which a knowledge of physics or natural philosophy would have entirely prevented. We have read of the search for the philosopher's stone, and later on of perpetual motion. In these days of advanced scientific knowledge men often strive to attain ends which are equally ridiculous. A few years ago many of us were invited to see a deep mine pump, which the inventor said would raise immense quantities of water, with only sufficient power or force exerted to overcome friction. We found he had two rising mains or columns of water, with a piston-pump at the bottom, and when working he fancied that the weight of one column of water acted upon the piston and lifted the other, forgetting that it had lowered itself a distance equivalent to the height the other had been raised, and that he could simply establish an equilibrium. Labour and expense were lavished upon this pump, of course to no purpose, and a description of it, with an engraving, actually appeared in one of the London scientific papers. The cleverest thing I ever knew attempted was a man trying to lift himself in two milk cans with the yoke over his shoulders. He managed very well till the bottoms came out of the cans, and the cylindrical portions flew up his legs. Unfortunately for themselves a large portion of those engaged in engineering (mining, civil, and mechanical) and other scientific pursuits never begin low enough—i.e., with the study of natural philosophy; or they disregard it as being of no moment, or too elementary, whilst others are only practical men without theory, and, consequently, strangers to the facts. Practice can feel its way a considerable distance without theory, but theory is of very little service without practice, as ten minutes of the latter will sometimes upset ten years of the former. The two together are valuable, and is the happy medium we want. In the instances I have related and intend considering, had those interested known and kept in mind the fact that under no circumstances whatever is it possible to create power or force they would have saved themselves much trouble.

The paper to which I have before alluded, and wish now particularly to call your attention to, is that which was read by Mr. Hurd at our annual meeting upon air-compressing and coal-cutting machinery. At the portion where he speaks of air-compressing machinery he says—I will quote the exact words, so that I may not misrepresent him—"Yet until our efforts of recent date there has been no record of any means by which atmospheric air could be stored up at a high pressure to be given off again as a motive-power for engines or other machinery, which should be equivalent to the amount of power expended in so storing a given quantity. The want of this machine has done more than anything else to retard the progress and adoption of our machinery in mining operations. Most machinery at present in use for compressing air does the work at a sacrifice of power equal to 50 per cent. Even at this rate of loss, it follows that the equivalent of a man's power exerted for a day of ten hours in cutting coal can be obtained out of compressed air at a cost of fuel of 3d. for the same number of hours. Nevertheless, this loss of 50 per cent. of power applied to compress the air has been sufficient reason to frighten those wishful of applying air as a motive-power. This was the difficulty which we had to overcome, and we have succeeded, since by Messrs. Firth and Hurd's patent machinery we can, with 1 lb. of steam pressure, produce 3 lbs. of compressed air." Further on he refers us to an article in the Colliery Guardian, copies of which, with an engraving, he distributed. In the said article the following description of the machine appears:—"In the production of air as a motive-power their object has been to obtain it at a minimum cost of steam, and for this purpose several ingenious mechanical appliances have been brought into requisition, and, amongst others, the introduction of a weighted differential lever, applying the power to the longer arm of it, connecting the shorter arm to the machinery for compressing, and applying the pressure of air as a governor. By such means there is something like 3 lbs. of air by an expenditure of about 1 lb. of steam, and even more, by the action of the weight of the differential lever, steam only being used to raise the lever into a vertical position to obtain almost any amount of power required. The lever by its velocity and weight increases its power during the course of each stroke, so that the weighted lever is the actual compressor of the air. The steam-engine is connected with the differential lever of the air compressor in such a manner as to have its greatest power at the moment the lever is being raised to its vertical position. It might be supposed that the lever would require as much power to be brought back, or to resist its falling power, and regain its vertical position. Such, however, is not the case, there being a sufficient quantity of air left behind the face of the piston and the end of the cylinder to assist in giving the turning point to the lever, so that no shock whatever is experienced by the engine in bringing it back. It may also be stated that the steam can be applied at the moment when it is at its highest power to assist the lever in compressing when extra compression is required in most instances. Mr. Hurd states that the lever can be so constructed as to be the actual compressing power.

A new and powerful air compressing engine, as shown by the engraving, has just been completed by Mr. Hurd at the Albion Iron Works, Wakefield, on the principle patented by that gentleman and Mr. Firth, and has been put down at the collieries of the West Ardsley Coal and Iron Company, near Leeds. It is intended to work several of the coal cutting machines belonging to the company, and also for the agitating of the oil manufactured close to the pits. The air cylinder is 22 inches diameter, whilst the cylinder of the steam-engine connected with it is 17 inches diameter. The weight of the lever is between 4 and 5 tons. The result of the experimental trials made was most satisfactory, for with 20 lbs. of steam-pressure 65 lbs. of air pressure was obtained with the greatest ease, although the air-compressor at the time was not worked to the extent it might have been, as the company's officials did not wish to press the air-receiver to its utmost limit, the escape valve at the time being tightly closed down during the experiments. The air compressor itself consists of two cylinders horizontal to each other, tied together by massive strong slides, the weighted differential lever striding them in a vertical position, and being mounted on substantial cast-iron framework. The valves are adjusted in such a manner that there is little or no noise during the working of the compressor, the whole forming a simple, powerful, and at the same time a colossal looking piece of machinery. You will see it is twice stated that with 1 lb. of steam-pressure 3 lbs. of air can be produced, and in another place that with 20 lbs. of steam-pressure 65 lbs. of air-pressure were actually registered. I could understand the latter circumstance supposing the air was not taken off at all, or as quickly as it was compressed, from the receiver, for then the pressure would accumulate as in a hydraulic ram. I very much fancy this must have been the case, as the article states that the escape valve was tightly closed down, and they did not wish to press the air-receiver to its utmost limit. I particularly questioned Mr. Hurd as to whether he meant, when saying 3 lbs. for 1, volume for volume and pound for pound, or 3 lbs. actual effect for every pound exerted, and he most emphatically answered in the affirmative. In fact, he must mean this, as you will observe that in the first extract he says,

till their efforts no machine gave out a motive power equivalent to the power exerted, and he goes on to show they have done even more than this. He is, therefore, creating power 200 per cent., which is undoubtedly impossible. Now, let us look at the means by which Mr. Hurd thinks he attains these results. He has had an idea at starting that they cannot be obtained in an ordinary way, and he, therefore, goes about it in an extraordinary fashion. By a complication of mechanical arrangements he imagines he gets this creation of power from the natural force of gravity. The air-compressing machine is composed of a vertical engine, to the crank of which is attached a coupling rod fixed at its opposite end to the top of a weighted differential lever. At the bottom the lever is connected to the centre portion of a piston-rod, common to a pair of air-cylinders. At each stroke of the engine the weighted lever drops as far as permitted on each side of its perpendicular, causing the air-pistons to traverse the length of each cylinder.

Now, Mr. Hurd vainly flatters himself that through the action of gravity accelerating the fall of the lever, he gains power, forgetting the important fact that the force of gravity is acting in exactly the same way and in the same degree upon the lever when it is being raised as when it drops, or, in other words, the retarding influence to the lever being raised again is exactly equal to the effect gained by its fall. Mr. Hurd says the weighted lever is the actual compressor of air, and would almost lead us to infer that the engine had very little to do with it, and again he remarks that there is enough air left in the ends of the cylinders to give the turning point to the lever; but he is only getting air back from or robbing the the air of power he has put into it, which is rather a backhanded way of working. This latter circumstance would, perhaps, in some degree account for the excess of pressure which the machine is said to have registered, for, by having the delivery cramped, and from the jerky motion of the falling lever, it may so reduce the volume as to get a high pressure, but then the effect produced would not be anything like equal to the power exerted.

If Mr. Hurd had claimed for his machine that it would give out an effect equal to the amount of power exerted to produce it, less a fair percentage for friction, leakage, &c., he would have been reasonable, and if such had been a fact he would have accomplished a desirable end. After a study of the construction of the machine, however, I am quite sure that if both the engine and machines utilising the air were indicated but a comparatively poor effect would be shown. The air compressor, in my opinion, would work much better if the differential lever were done away with, and the steam-engine connected direct with the air cylinders. The complication and round-about arrangement of the apparatus gives one the idea of going from here to Liverpool to get to London as the shortest route. In conclusion, I would urge, upon young members especially, to closely study natural philosophy, and to keep in mind the following facts:—It is impossible to create matter, and it is equally impossible to destroy it. Power or force is exactly subject to the same conditions as matter in these respects, and when effect is to be gained an equivalent power has to be exerted—or, in plain words, the work done by any machine is the same as the work applied. The discovery that power is indistructable is one of recent date. Count Rumford found that in boring cannon by horse-power sufficient heat was given off to boil water; heat, in fact, is nothing more than another form for motion, and that whenever you exert power heat is generated. Dr. Joule brought this discovery to a practical basis, for he determined the mechanical equivalent of heat, which is that a weight of 772 lbs. falling through a space of 1 foot will generate sufficient heat to raise the temperature of 1 lb. of water 1° Fahr. Gravity acts separately upon every particle of matter, and consequently equally upon all bodies, so that a weight of lead and a feather if dropped from any height would reach the earth together if it were not for the resistance of the atmosphere. I have known the peculiar properties of water or other liquids often puzzle even mining engineers, who could not understand how they communicated pressure. Any bulk of water presses equally downwards, upwards, and sideways, according to the head which is connected with it, and this equivalent to 433 lbs. per square inch for every foot in depth. I will not trouble you further, but if my remarks induce young members to study the important laws and conditions of nature I shall be extremely gratified.

Mr. Peacock thought it would not be fair to discuss the paper in the absence of Mr. Hurd, although Mr. Smith had written informing him of his intention to criticise his paper, thus giving him an opportunity to be present. Mr. Peacock went on to state that although Mr. Smith's paper was addressed particularly to the younger members, he thought it would rather upset some of the older ones, and make them up to their knowledge of natural science.

Mr. Parton, F.G.S., proposed a vote of thanks to Mr. Smith, who, he said, had given them a paper full of thought and study. This was carried unanimously.

Mr. Smith briefly responded, at the same time asking the members for other papers, it being unfair, he said, to let the interest of the meeting depend upon the efforts of the secretary, who had enough to do with his other labours.

Mr. Munro gave notice of motion against Rule 5, which provides for an entrance fee.

NORTH STAFFORDSHIRE INSTITUTE OF MINING AND MECHANICAL ENGINEERS.

A meeting of the members of this institute was held at Stoke-upon-Trent, on Wednesday, Dec. 6, Mr. DANIEL ADAMSON (the President) in the chair.

The PRESIDENT explained that the Council had passed a number of resolutions, from which it was expected much benefit would result. They would shortly have to submit to the Institute a proposal for altering the bye-laws so as to enable any member to introduce, *via* vote, a subject for discussion. Papers had been promised by eminent men on a process of sinking pit shafts through watery strata, on boring by mechanical means instead of by manual labour, on the application of steel to appliances for mining, and on the rise and development of locomotives. A paper was likely to be read before the members of the Mining Institute and the Naturalists' Field Club on the mining faults of the district, by the President of the "Naturalists' Club." A paper had also been promised on the metallurgy of copper, which would bear on the casting of liquid metal under pressure. The Council would submit for the consideration of the Institute a proposition as to the desirableness of having bi-monthly instead of monthly meetings, which it was thought would be a benefit to them. It was unfortunate that Mr. Marshall, of Leicester, and Mr. Storey, of Kidsgrove, who had supplied papers on "The Sectional Boiler" (Shepherd's patent) and "Fan v. Furnace Ventilation" respectively, had telegraphed to say that they were unable to attend to take part in the discussions of those subjects which were to take place that evening.

Mr. HOMER said that he should like to have had more time to consider Mr. Marshall's paper, but he would make one or two remarks on the subject. It was very important that they should get the best boiler they could to generate steam at the least possible cost. Some years ago a boiler was brought into use on a similar plan to the one described by Mr. Marshall, and it was commonly known as the "bottle boiler," which was not a bad name for it, because it was like a series of bottles placed side by side and connected by pipes at the top. When he was looking in at the fire-door, the fireman advised him not to stay there, as two of the "bottles" had burst that day. If they could successfully adopt a system of taking a boiler in sections underground and connecting them together it would be a great benefit; but he certainly must say that so far as he was enabled to judge of the boiler he had not a good opinion of it. The one he saw was of cast-iron, which, perhaps, had something to do with the bursting of which the fireman spoke, but he did not know whether the boiler referred to by Mr. Marshall was of cast iron or not. It appeared to be larger than the one he (Mr. Homer) had seen.

Mr. F. SILVESTER (Newcastle) thought that as a colliery boiler it would be difficult to persuade the colliery owners of North Staffordshire to invest money in Shepherd's patent. In a colliery boiler they required great strength and the fewest parts. Where they had a complicated boiler there was great expense in repairs, and it was

often found better to throw the thing away than begin to repair it. The boiler in question appeared to him to be of the Howard type, which was now numbered with the past, and he did not believe it would be brought into general use.

Mr. J. ASHWORTH (Burslem) enquired what would be the effect of evaporation taking place in conical tubes. Shepherd's patent appeared to be a flash-draft one, and if dirty water should be used in it, it would encrust the tubes. There did not appear to be much convenience for cleansing it.

Mr. J. MACDONALD (one of the vice-presidents) said he had not had much experience of sectional boilers. Taking a colliery manager's view of it, they should have a large heating surface, so as to utilise the common stuff which was about collieries in the shape of fuel.—Mr. ASHWORTH said that in Engineering in the beginning of the present year there were several articles on trials of the Lancashire, the Fairbairn, and the Elephant boilers, and the results, as they were summed up, were in favour of the Elephant boiler, in which they got a large quantity of fire space, small diameters, high pressure, and everything they desired. Some time ago one of Mr. Adamson's men was repairing a boiler for him, and he asked him if there was anything new at Mr. Adamson's works. The reply was there was something new there, and it was of the Elephant class. The only difference there was between the Fairbairn and the Elephant boilers was that in the former there was a flue running up one of the bottom tubes.—Mr. WOODWORTH (Kidsgrove) said if they called the Shepherd boiler a bottle one the bottles were inverted.

Mr. HOMER said that in the boiler he had referred to the bottles were put both ways. It was at the Punkey Ironworks, near Ruabon, and he believed the boiler was in five sections. When one part burst it could be re-fitted while the others were working. Speaking of the Elephant boilers in use on the Continent, he saw some of them last month. They did a great amount of work with a little fuel, but as a rule they were carrying a low pressure, and he did not see anything above 35 lbs. to the square inch.—Mr. ASHWORTH said the egg-ended boiler worked at a pressure of 50 lbs.

The PRESIDENT said he had been deeply interested in the manufacture of high-pressure boilers. It had been mentioned that he had a boiler of the Elephant type. Amongst his multitudinous customers at home and abroad there were many who desired to burn wood, and a Cornish boiler had sufficient fire area to burn coal which was not of the first quality. With respect to the drawing which was exhibited, it showed five tubes, two of which were on the right and two on the left of the cylinders, the diameters being small, with no corrosive heat, and no destruction of brickwork. There was no loss of power, no great wear and tear, as in the old cylinder boiler. But there was no boiler wherein the reserve power was so great as in the old cylinder boiler. For colliery purposes, where an exceedingly poor fuel could be got at a low cost, the cylinder boiler had merit if the water was not dirty, but if the water was bad and contained much lime, it became dangerous by adhering to the plates. Cylinder boilers contained ten gallons of water to one square foot of heating surface. Any drawing away of the steam lowered the pressure, and latent heat already stirred up, flashed into steam, and the boiler sustained good pressure under intermittent action. It contained a larger body of water for its heating surface than any other boiler. The Chimney boiler at work amongst forges carried as far as 14 gallons of water to the square foot of heating surface. The quantity of heat was so enormous as to make them comparatively steady steamers. That was the reverse of all sectional boilers aiming to carry small quantities of water. Hancock's engines were made in 1835, and the tubular boilers carried a small amount of water with a large amount of pressure. With regard to tubular boilers there was nothing new in them except as to the way in which they were arranged. They could not keep the pressure steady if they had a variation of diameter. Supposing they had a pressure of 50 lbs. to the square inch they sometimes heard of priming taking place, and when they heard of that, they might set it down that it had not a heating surface commensurate with its requirements. If they had 100 lbs. pressure, and a certain quantity of water reduced it to 90 lbs., they jeopardised the engine. If the Howard boiler had never been seen many persons would have saved a considerable expenditure of money. The Lancashire boiler had, perhaps, been adopted more than any other to work at a pressure of 100 lbs. to the square inch. It carried 5 gallons of water per square foot of heating surface. Water had to convey all the heat, transmit it to the surface, and unless they had a given quantity of water to a given quantity of steam they had internal havoc going on, while they thought there was nothing but safety. Boilers constructed to contain a small quantity of water and do a great amount of work could not succeed in absorbing the heat with sufficient rapidity to remain steady heaters and steamers. It was an utter waste of time to construct tubular boilers to produce a great amount of steam to a small quantity of water, for as soon as they withdrew the pressure violent ebullition took place, and the water could not carry the steam away. A locomotive boiler barely carried one gallon of water per square foot of fire-grate, and whenever they took the steam from the boiler with vigour, or took a greater quantity of heat than the fire put into the water, ebullition was produced, showing that ebullition was not a question of pressure. The locomotive he instanced had not a tubular boiler. For the last fifteen years all the boilers made had vertical water space, but not vertical tubes. When they remembered the crash and dash of the locomotive it would easily explain how they could liberate the heat, whereas if the tube had to go to the the boiler end it would be in danger of being overheated at some particular point. Hence the innumerable troubles of boilers of the Howard class. They wanted medium-sized structures to do a fair measure of work in proportion to the quantity of fuel used. That could not be gained by boilers of the Howard type. They could not force water to go out of its way to do their bidding. There was a law of absorption and a law of getting rid of heat, and a boiler of the tubular structure never could get rid of the heat. What was called circulation ought to be called confusion. Sectional boilers contained more water than some other kinds, but he had no doubt they contained so little water as to be dangerous. Until they had it demonstrated to the contrary, they must adhere to some approximation of five gallons of water to a square foot of heating surface, and if they only had half that quantity they had a dangerous machine. That was a principle which could not be denied. In all cases where they wanted security, they must have sufficient conveying medium to get rid of the heat as well as absorb it. He condemned the Safe and Sure boiler, and proceeded to urge the importance of manufacturing boilers from iron made by the Bessemer process, concluding by remarking that the construction of a boiler to carry high pressure was much easier than in the time of their forefathers.

Mr. CHARLES LLOYD (Stoke-on-Trent) said that the Safe and Sure had been described as a dangerous boiler, and yet although a large number had been used no one had been killed by it, though one or two men had been scalded.—Mr. HOMER said from what he had seen of the Howard boiler he should be sorry to put one into use himself.—The PRESIDENT repeated his objection to the Safe and Sure boiler, and it was decided that the discussion as to Shepherd's patent should be adjourned, to give Mr. Marshall another opportunity of attending.

The discussion with regard to Mr. Storey's paper on "Fan v. Furnace Ventilation" was adjourned.—*Staffordshire Advertiser.*

SOCIETY OF ENGINEERS.—At the twenty-second annual general meeting of the Society of Engineers, held on Monday, Mr. John H. Adams, one of the past presidents, in the chair, the following gentlemen were ballotted for, and duly elected as the council and officers for the year 1877:—As President—Mr. T. Cargill; as Vice-Presidents—Mr. C. Barnard, Mr. F. W. Hartley, and Mr. S. P. Spice; as other Members of Council—Messrs. J. Bernays, J. Church, C. Horley, T. G. Iveson, T. Porter, A. Rigg, J. Walker, and F. E. Duckham; as Honorary Secretary and Treasurer—Mr. Alfred Williams; and as Auditor—Mr. W. H. Bennett. It was announced by the President that the following premiums had been awarded by the Council for papers read during the year:—To Mr. Henry Davey for his paper "On the Underground Pumping Machinery at the Erin Colliery, Westphalia;" to Mr. Charles E. Hall, for his paper "On the Con-

version of Peat into Fuel and Charcoal," and to Mr. J. W. Pearse, for his paper "On the Ventilation of Buildings."

MINING AND STOCK EXCHANGE NEWS OF THE WEEK.

Messrs. F. W. MANSELL and Co. (Sworn Stock and Share Brokers), Finner's Hall, Old Broad-street, write to us as follows:—

SILVER MOUNTAIN MINES—EXCHEQUER, I.X.L., ISABELLE, &c. (No. VIII.)—The early period when this locality was first discovered and occupied excitement and hilarity were of daily occurrence. The dense growth of the beautiful pine, the unsurpassed purity of the atmosphere, the facilities for an economical development of the lodes, and the splendid water privileges of the district, gave rise to the popular belief that at some time in the future this would be a region of great worth and unlimited business activity. Here permit us the prediction, that although years have elapsed since these discoveries were made, and comparatively little work performed upon the individual localities other than shallow tunnel developments, yet, notwithstanding the long period of inactivity, and the absence of methodical working, the ideal hopes indulged in by those early locators and hardy pioneers will ere long prove a reality, not of mythical imaginations or momentary vagaries, but of facts and figures. Long-trying experiences have taught that mere superficial openings in the mountain sides above the immense surface disturbances here revealed are, in the majority of cases, utterly useless, while the capital necessary to promote and continue tunnelling interests of such magnitude as appears in many places throughout the country is not to be found with that ease hoped for during the earlier experiences. In the description that will follow of the mines in these several districts it will be noticed in almost every instance this has been the method of prospecting, and in many cases at mere nominal depths. This locality, as well as others, has seen its portion of such work.

As already explained, the discovery of the Comstock Lode at a point near the present site of Virginia City was occasioned by a couple of gold washers digging a shallow pit to hold water for the use of their rockers. This event, which occurred in the month of June, 1859, was the result of the sheerest accident. These men were not seeking for silver nor ores of any kind. In so far as they had any idea about such substances this was the thing they were most desirous of avoiding. While working up Six Mile Canyon the year before they and their companions as they approached its head had encountered a dark-coloured heavy metallic rock—"black stuff" as they called it—which had caused them no little trouble, its weight being so nearly that of the gold obtained along the canyon that they found it difficult to separate the two in their rockers. All the gold dust gathered in Six Mile Canyon, as also in Scandinavian Canyon, Silver Mountain, containing a large percentage of silver is much lighter than the average California dust, and consequently more difficult to save by the process of washing. When, therefore, these honest miners detected in the pit they had sunk presence of this "detestable stuff"—the rich sulphurets of silver—they were disgusted thereat, and would have thrown it aside and paid no farther attention to it had they not found mixed up with the earth thrown out a considerable amount of free gold. This was an article with which they were acquainted—was, in fact, the thing they were searching for—wherefore they at once proceeded to take up a surface or placer claim at that point.

A multiplicity of claimants arose, as this precious spot happened to be within the boundaries of the ground located the year before, or this was at least the view the old men chose to take of the matter, and not, perhaps, without some show of reason, as it was then the custom of the district to make square locations in taking up both quartz and placer claims, and it might well have been that his claim, the "croppings" on which lay only a few rods farther west, included this spot within its limits. A miner who had been previously washing along a small ravine a little below this place also advanced some sort of claim to an interest in the new discovery, there being several others who upon one pretext or another were seeking a share in it.

Affairs being thus complicated, Mr. Henry P. Comstock, an old resident and common friend of all the contestants, was elected, or perhaps elected himself, to act as umpire—an office he seems to have performed to his own satisfaction, and, for aught that appears to the contrary, to the satisfaction of all concerned. In adjusting the business it was so arranged that the umpire appeared on the record as the owner of most of the property in dispute, he having first awarded it to Finney, and then bought the latter out. The claim in question covered what are now known as the "Bonanza Mines," and also part of the present Ophir ground. Within a year from the time the above transaction took place it sold for \$1,000,000. That the other parties to this contest should have so readily yielded their pretensions and acquiesced in the disposition thus made of the property is explained by the fact that they did not consider it of any special value, and had not, probably, much confidence themselves in either the justice or validity of their claims. Yet, after only a few short years this property is selling on the San Francisco Stock Exchange at \$110,000,000 (22,000,000), Consolidated Virginia and California alone disbursing in monthly dividends \$2,160,000 (432,000). These figures give a rate of interest on the quoted value of the whole of the Comstock Mines of upwards of 2 per cent. per month, or 24 per cent. per annum.

Remembering what a San Francisco expert has recently put forth as to Silver Mountain being the geological extension of the Comstock belt, the above narrative concerning the latter cannot fail to have especial interest to those already, or likely to be, associated with the Silver Mountain Mines.

ISABELLE (Gold and Silver).—As stated in previous papers, this mine is situated in Scandinavian Canyon, Silver Mountain, and comprises two main lodes—the Pine Tree and Adolphus, and four side lodes. Like the great Mother Lode at the Comstock Mines, the Isabelle lodes bear a north-easterly direction, and parallel to that in Exchequer. The croppings are similar in character to those of the Exchequer main lode, but (as described by an experienced expert) "are considerably more mineralised, frequently showing ruby silver." The same expert adds: "I took several pieces of the lode matter from the different dumps, which I consider a fair average sample, as I did not pick it out, and had it assayed by the Territorial Assayer of Colorado, and it gave the following results: 5 ozs. of silver per ton of 2000 lbs., and traces of gold; it is very seldom you will find lodes on surface so thickly impregnated with the precious metals as is the case with the Pine Tree and Adolphus lodes, and I think it argues that there must be large lodes of solid mineral below. It has been proved by their neighbour—the Exchequer—that the rich ore bodies in this district are not on the surface, although the indications at Isabelle are that they will be found not far off." Mr. Cooper is of opinion that, as in the case of the Comstock, the Isabelle side lodes will upon development "prove to be spurs of the big Mother Lode—Adolphus—they being a short distance to the south of it, and appear to be running towards it." Mr. Cooper considers "the Exchequer, I. X. L., and the Pine Tree and Adolphus (Isabelle), the four main lodes of the Silver Mountain district, and shall feel much disappointed if, when they are properly developed, they do not turn out immense riches."

EXCHEQUER (Gold and Silver).—The remarks we recently made upon the O'Hara furnace have elicited enquiry from several shareholders as to the modes usually employed to reduce silver ores. In reply thereto we may mention that the common modes of reducing silver ores are two—amalgamation and smelting. Both mercury and lead have a strong affinity for silver, and these reducing processes are based on this fact. In amalgamation the silver ore is brought to the state of a chloride by a mixture of the powdered ore with about 8 per cent. of common salt; the chloride is reduced by means of salt or sulphurets of iron, or metallic iron in filings, and at the same time mercury which has been added combines with the liberated silver, and thus separates it in the condition of an amalgam—this, separated from the muddy mass by a current of water, is then filtered off the excess of mercury; it is then subjected to heat in a distilling furnace, by which the silver is left behind, the mercury passing off in a state of vapour to be condensed in a chamber. In

case of the ordinary sulphurets and arseniurets of silver, or the chloride, the poorer ores are first fused with a flux, and the result (called the "matt") is then roasted to expel the sulphur. It will be probably recollected that in our recent report upon the Exchequer Mine and Mill we explained the working of the O'Hara Champion Chloridising Furnace, stating that it was first erected in Idaho, and its operations were highly spoken of by Guido Kustel, a celebrated authority on all matters connected with the roasting of gold and silver ores. We also mentioned that ores of the Peavine district were so rebellious, containing antimony, arsenic, copper, zinc-blende, and lead, that all attempts had failed to reduce them by the ordinary mill process of roasting. Mr. O'Hara undertook to erect a furnace upon the condition that if he did not extract 80 per cent. of the precious metals contained in the ore he should not receive anything for his work. The furnace was built, with the result that 90 to 95 per cent. was easily obtained, assaying \$100 per ton. The same character of ore had been previously taken to Reno and roasted by a Stetefeldt furnace, but no bullion was obtained. We now find from advices just to hand that the O'Hara furnace has brought about a complete revolution in the Peavine district. The Reno Journal, referring to this matter, says:—

"The news from our prominent mining districts continues favourable. The Consolidated Peavine Mine at Peavine will turn out \$10,000 or \$15,000 in bullion in the next two weeks. Peavine is coming out all right. The Pyramid Mines have lost none of their attraction, and the showing for a second Comstock is excellent. Some very fine ore is being encountered, and winter will not delay the work of development. There will be fortunes made out of Pyramid." The official advices from the Exchequer Mine this week state that magnificent ruby silver is being opened out both in the 300 and 400 ft. levels, that all the stopes are looking well, and that 68 carloads of ore had been raised during the week. To give an idea of the size of the mill the main building over the new and old battery requires 400 shingles; these are made by the company's machinery.

I.X.L. (Gold and Silver).—The official advices this week notify that the north drift is in 314 ft. from the engine-shaft, and that there is a large lode in the face, and some good ore. This is important, as the end is approaching the perpendicular of the bonanza gone down in the upper levels. The Alpine Chronicle says:—

"This mill is rapidly approaching completion. The building is mostly enclosed, the boilers have been set, and the engine will be put up next week. The pans, separators, &c., are being placed in position, and the entire work is being pushed on by Mr. Arnot, the contractor, who desires to take every advantage of the present fine weather. It is Mr. Arnot's intention to have the mill in working order by New Year's Day."

SILVER.—What is the depreciation of silver but the appreciation of gold? The normal proportion of silver to gold is as 13 to 1. Some months since, during the scare, it was feared the demonetisation of silver by Germany, and the large output of the Comstock Mines, would destroy this proportion. Hence the expectant attitude of the different countries known as the Latin Union—France, Italy, and Greece. It is not generally known that such mines as the Consolidated Virginia and the Exchequer turn out in depth larger amounts of gold in proportion to silver. This fact has gone a long way to calm financial apprehensions with reference to the depreciation of silver, and it has been further ameliorated by the advance in the price of silk and other articles, attracting additional supplies of this metal towards China and other eastern countries. Furthermore, a bill has been introduced into the House of Representatives asking for the purchase of silver and its coinage into dollars, which are to be legal tender. This at once places silver on its former parity with gold, and will, probably, attract a large supply of it from European countries. Another rise of at least 3d. per ounce has to be recorded in the market price of bar silver, the arrival by the Pacific steamer having been disposed of at 57½d. per ounce. Small transactions at even higher rates are stated to have occurred. On Wednesday, after the allotment of the India Bills, the market quotation was advanced, and the rise since then warrants the expectation that a much higher price will yet be obtained.

MINING STOCK AS AN INVESTMENT.—Misconception exists upon this point, many supposing that mining stock has no basis in solid value. Beyond doubt there are times when particular shares assume a value to which they are unentitled, as in times of great excitement, or when, for special purposes, it becomes advisable to collect as much of the stock as possible into one quarter. But these periods of fictitious values are mostly ephemeral, and the stock always finds its proper level again—a loss to some and a gain to others. This has come to be pretty generally understood, and it is for the benefit of our readers that we make these observations. Mining is a legitimate business, and the purchase of stock is a legitimate investment as much as any other—it has its risks, as has all kinds of investment. The stock may depreciate so as to be no longer worth the sum paid for it, but no one knows better than capitalists just now that nearly all descriptions of stock may shrink to an extent which renders it no longer security for the capital paid for it. England has lost by the default of Turkey, Egypt, Spain, and South America no less than 100,000,000. As an investment figures demonstrate that the returns to investors in mines are remunerative to the holders.

GENERAL MARKETS.—In the early part of the week the tone was good, the absence of any unfavourable political news from the East having given a firmness to the markets. Although an optimistic sentiment prevails now, a very different one may follow, as nothing has yet been settled at Constantinople, and a serious divergence of opinion may display itself at any moment. At the fortnightly settlement the rates charged to continue transactions were in most instances about the same as those current on the last occasion, but exceptionally high terms were demanded to avoid delivery of Argentine stock, especially the 1863 loan, in which a drawing takes place before the next settlement.

FOREIGN BONDS.—This department has been without life, the prices from the Continent exhibiting an undecided tendency. This, combined with a disinclination to enter into new business, has given operators for a fall an opportunity of which they have not failed to avail themselves. Russians were rather scarce on the account, and there was not an over supply of Egyptians, although the Khedive Loan experienced a marked fall under the influence of Mr. Goschen's speech. The holders of the Government securities may congratulate themselves on having had the Daira debts cut away from them. Brazilian were strong, but Uruguay followed Argentine in a degree.

RAILWAYS.—There appeared at the settlement less stock available for delivery, and the rates charged were slightly higher. The weekly traffic receipts were deemed satisfactory on the whole, though the Midland, with its increased mileage, should have earned more money, and not 1200L. less. Great Easterns have been firm, the increase on that line being very good, and hopes are indulged in of a 2 per cent. dividend this half-year. Great Northern shares have been flat, the weekly receipts showing only 233L. more than for the corresponding week of last year. North British have risen more than any other stock; it would seem that the estimate of the yield for six months is about 4 to 4½ per cent. North-Western, notwithstanding a good return, have been flat.

DON PEDRO.—The shareholders at the meeting, on Wednesday, authorised the directors to take the necessary steps to erect permanent pumping machinery, for the purpose of proving the mine in depth; and there is no doubt this is a sound and business-like decision. The most recent advices from Captain Vivian show that favourable indications have been met with; of course, it is impossible to say at present of what importance these discoveries may prove, but evidently the only sensible proceeding is to put up the powerful machinery, which has been on the mine for a long time, and so thoroughly test the value of the discoveries. The directors have about 7000L. in hand; and there is the possibility, and even the probability, that the produce obtained during the process of development may contribute materially towards the outlay, so the shareholders may reasonably hope that the important work may be carried on without a call. The mine is now under the charge of Capt. Joseph Vivian, who belongs to a Cornish family the members of which have always been held in the highest repute as thoroughly upright men and expert miners, and since Capt. Vivian has been at the mine he has displayed those characteristics in an eminent degree. Taking a fair view of the situation, it may fairly be hoped that there is a good future in store for the Don Pedro; not, perhaps,

a return to the 100 per cent. dividend of former days, but, at any rate, a fair profit for the money which the shareholders have invested.

MEETING ROOMS.—Nearly the whole of the numerous meetings which are continually taking place in London have, up to the present time, been held at the City Terminus Hotel, Cannon-street, in consequence of the London Tavern having been pulled down. Now, however, suitable rooms are to be obtained in the National Safe Deposit Company's building, No. 1, Queen Victoria-street. The premises are conveniently situated, and the rooms are in every way suited for the accommodation of large or small bodies of shareholders. A number of companies have already held meetings there, and, doubtless, many more will recognise and take advantage of the excellent accommodation offered.

Original Correspondence.

TANKERVILLE ACCOUNTS.

SIR,—An "Old Shareholder," in last week's Journal, casts a very serious imputation upon the auditors of this company when he asks if they are not liable to punishment for passing the late accounts. The auditors may, possibly, reply that they have only to certify to the correctness of such figures and accounts as are placed before them, and in the present instance of Tankerville the accounts are signed also by two of the directors and the manager in London, and the question, therefore, as it seems to me, is—Were they thus signed before or after the audit. That they are misleading is clear; still, perhaps, they are not strictly incorrect when dates are examined and considered—things which people in general are too apt to overlook. Perhaps, in this part of the country, these accounts are exciting the more attention, coupled as they are in men's minds with the reported sale of a very large number of shares. The six months' sales of produce, as shown in these accounts, include the last sale in October, and amount to 750 tons; the monthly expenses are 1250L., or thereabouts, and these are debited to the end of August. In this manner there is shown a balance of 2977L. to the credit of the company. The liabilities, as I take them, which have to be met in cash include September, October, and November expenses, which, at 1250L. per month, would require 3750L., or a large sum beyond the above balance. Yet the directors at the same time declare a dividend of 3000L. If I am wrong in the impressions thus formed in regard to these accounts—and these impressions are shared by many others—I shall be glad to be put right by any explanation from the directors, as well as the auditors, who signed them.

A NORTH-COUNTRY AUDITOR.

TANKERVILLE MINING COMPANY.

SIR,—From the letter which appeared in your last week's issue under the above heading it is evident that your correspondent, though "An Old Shareholder," has but little knowledge of mining accounts. Your correspondent asks how it is that in the balance-sheet just issued by the above-named company, revenue is credited to October, while expenditure is only made up to August? The answer is of course obvious, that the August cost would not in the usual way be due and payable till October, while a good deal of the expense in connection with the ore sold in October would be included in August cost-sheet. There would also be the value of ore broken and in course of being dressed, for which no credit is taken in the accounts. It seems quite ridiculous to ask the question, "If two months, why not three, four, or five months difference?" as there would be no resemblance in these supposed cases. "An Old Shareholder" will see that the accounts are not made out according to weeks, but months, and some of the latter are what is known as "five-weeks months." Each half year includes six months costs and sales. Here again, it is simply ridiculous to ask, "why not 23 (weeks) or any other number?"

ANOTHER OLD SHAREHOLDER.

[For remainder of Original Correspondence see this day's Supplement.]

Meetings of Public Companies.

CWM DWYFOR COPPER AND SILVER-LEAD MINES CO.

An extraordinary general meeting was held at the company's offices, St. Clement's House, yesterday.

Mr. TURNBULL in the chair.

Mr. G. J. GRAY (the secretary) read the notice convening the meeting.

The CHAIRMAN stated that, as set out in the notice just read, the meeting was called in the first place (in consequence of some doubt having been expressed as to the technical regularity of the extraordinary resolution passed at the meeting held on Oct. 18 last for winding-up the company) to pass an extraordinary resolution for winding-up the company and for appointing a liquidator; and, secondly, to consider, and if deemed desirable, to pass a special resolution, under Section 161 of the Companies Act 1862, for the transfer of the property and assets of the company to a new company. He regretted that this course was necessary, but he believed that under the circumstances it was the best thing that could be done. By the arrangement proposed it was intended to form a new company with a capital of 20,000L., in 20,000 shares of 1L. each, and to allot to all those shareholders who would accept them, on or before the 31st prox., one share credited with 10s. as paid-up thereon for each share held in the present company. The scheme had been supported by shareholders to the extent of nearly one-half of the capital of the present company, and the directors were anxious that all the shareholders should participate in the benefits of the arrangement, as from the reports furnished as to the prospects of the mine, there appeared very good chances of early success. The only object the directors had in advising the transfer to the new company was to secure some return upon the amount invested in the undertaking.

Some conversation ensued, after which Mr. BELLAIR moved the following extraordinary resolutions:—"That it has been proved to the satisfaction of the company that the company cannot, by reason of its liabilities, continue its business, and that it is advisable to wind-up the same voluntarily. That Mr. G. J. Gray be appointed the liquidator of the company, at a remuneration of 34 guineas."

The resolution having been seconded by Mr. PARRETT, was put to the meeting, and carried unanimously.

The SECRETARY having read the heads of the proposed agreement for the transfer of the property to the new company, produced the drafts of the Memorandum and Articles of Association thereof.

Mr. BARTON then moved as a special resolution, "That the liquidator be, and he is hereby, authorised to enter into an agreement for the sale of, and to sell, the assets of the company to a new company about to be incorporated by the title of 'The Cwm Dwyfor Mining Company (Limited),' under the Companies Acts, 1862 and 1867, with limited liability by shares, and having a nominal capital of 20,000L. divided into 20,000 shares of 1L. each (the proposed Memorandum and Articles of which new company have been submitted to this meeting, and are hereby approved), upon the terms of the said new company discharging the liabilities of the company, and paying the costs of the winding-up of the company, and of carrying out such agreement, and also allotting to the members of the company one share in the new company, credited with 10s. paid thereon for each share held by them in the company, or any less number, at the option of the member or members entitled thereto, provided such share is accepted (by signing an application for the same, and forwarding it to the company's offices) on or before Jan. 31 next, and upon the other terms contained in the draft agreement for sale between the company by its liquidator of the one part and the new company of the other part now produced, and which draft agreement is hereby approved."—The resolution was seconded by Mr. J. U. TAYLOR, and having been put to the meeting, was carried unanimously.

The SECRETARY read the following report recently received from Capt. John Roberts, of the Symde Dylluan Mine:—

Nor. 27.—I have several times visited these mines as well as nearly all the mines in Carnarvonshire, for the purpose of studying the nature of the formation, the mineral veins, and the laws which govern the deposition of minerals in them. My last visit to your mines was on June 16 last, about two months before you suspended operations. For the benefit of those who may not be acquainted with the district it may not be out of place to notice its situation. It is situated at the head of Pennant Vale on the southern flank of Mynydd Talymud, the famous old mines of Dwyfor and Symde Dylluan being on the opposite side, which old mines have been worked for more than a century, have sent to market as much as 100,000 tons of mineral, and are still being worked. The same formation runs through your mine, having the same kind of lodes, slides, &c., &c., and so you have reason to expect similar deposits of ore. It is true that analogy does not give proof positive of the existence of mineral, but it is the only guide we can or should follow when in search of these hidden treasures. In addition to these advantages you are so situated as to be enabled to utilise a stream of water for motive-power, thus saving the cost of steam. By the completion of the railway from Portmadoc to the mine the cost of transit is reduced to a minimum. The next thing I wish to notice is the lodes. Of these you have several running parallel to the lodes in the mines I have already alluded to, having the same kind of outcrop, producing copper or lead where the slides come in contact with them. Those who hold that the bunches which occur in this outcrop in the district are

COMPANY (LIMITED).

CAPITAL £60,000, IN 12,000 SHARES OF £5 EACH.

SECRETARY AND OFFICES (*pro tem.*)--CHARLES RUSSELL, Esq., 126, Bishopsgate-street, London, E.C.

[For remainder of Meetings see to-day's Supplement.]

TO ALL WHOM IT MAY CONCERN,

Yours very truly, for P. Watson and Co.,

VAN MINES—MONTHLY REPORT.

THE SCOTCH MINING SHARE MARKET—WEEKLY REPORT
AND LIST OF PRICES.

[illegible]

available delays by changing machinery have prevented a better output. Experiments with dynamite prove a saving of labour but not of costs. The present

the body, and so strengthen and support the system that disease departs, and leave the patient not at all shaken. This is the grand aim and object of medical art: to regulate disordered functions without damaging the constitution by the remedy.

Experiments with dynamite prove a saving of labour but not of costs. The presence of

HOLLOWAY'S PILLS.—The resources of medicine and chemistry were long and fruitlessly tried before they yielded a remedy which could overcome disorders of the stomach and nerves, till Professor Holloway discovered his purifying and tonic pills. They are the safest and surest correctives of indigestion, heartburn,

flatulency, torpidity of the liver, twitchings, nervous fancies, despondency, spirits, and declining strength. Holloway's pills supersede all irregular action of the body, and so strengthen and support the system that disease departs, and leave the patient not at all shaken. This is the grand aim and object of medical art to regulate disordered functions without damaging the constitution by the remedy, admirably is this end attained by Holloway's Pills.

Mining Correspondence.

BRITISH MINES.

ABERDUNANT.—S. Toy, Dec. 13: Deep Adit Level: In rising towards the new shaft the ground is hard, but the men are making fair progress. In the east part of the set (Crown) in the cross-cut driving towards the south side, we have met with another branch, 3 ft. wide, and underlying south about 3 ft. in a fathom: it is composed of nice quartz, sulphur, and spots of lead, and discharging water freely.

ASHFORTH.—J. Craze, J. Manley, Dec. 14: We beg to hand you our setting report for the four weeks ending Jan. 6:—The 20, east of boundary, has been extended 9 fms.; no change in the lode since last report; set to four men, at 121 per fathom (82 fms.). The 60 east has been extended about 30 fms.; no change in the lode since our last; set to four men, at 81 per fathom. The 60, east of Mawr shaft, set to four men, at 81 per fathom: the part of the lode carried is about 3 ft. wide, composed of spar, copper, blende, and lead ore, producing saving work of the latter; the lode is letting out a good deal of water. No. 1 stope in back of the 60, west of Mawr shaft, set to four men, at 101 per fathom: this is a new stope to prove a piece of ground standing between No. 2 stope and Mawr shaft, and under where a good lode has gone down in the sole of the 40; value shall be given in our next. No. 2 stope in back of the 60, west of Mawr, is set to four men, at 81 per fathom: the lode still maintains its value at 41 per fathom. We have set eight tribute pitches—two men in back of the 40, east of boundary, at 81 per fathom; two men in back of the 40, west of Browne's, at 61 per ton; two men in back of the 10, west of Mawr shaft, at 61 per ton; two men in back of the 20, west of Mawr, at 71 per ton; two men in back of the 20, east of Mawr, at 71 per ton for lead and 71 per ton for copper. Two men in back of the 20, east of Mawr, on east and west lode, 81 per ton. Two men in back of the adit, on north and south lode, north of Gundry's shaft, at 81 per ton. We sampled 35 tons of lead on the 11th, for sale on the 15th inst., of which shall be given in due course.

BEDEFORD UNIED.—R. Galsworthy, W. Phillips, Dec. 7: The shaftmen are making good progress in sinking the engine-shaft, at 127 fms. level. The north part of the lode has been stripped down, and so far as seen is worth about 401 per fathom, or for length of shaft, 801. The lode in the 127 east is worth 21 per fathom, and the same level west, 101 per fathom. The lode in the 115 east is much improved, worth 21 per fathom. We have resumed sinking the shaft in this level. The lode is small, worth 81 per fathom. In the 105 west the lode is 121 per fathom, or in the 103 east the lode is a present one. At this level west the lode is smaller, but worth 81 per fathom. The two stopes in the 115 and one in the 103 are worth on average 71 each per fathom. The prospects of the mine are very encouraging.

BELTONE.—James Neil, Dec. 9: A shaft: The 50 west on lode has been driven 4 ft.; total distance from cross cut south 3 fms. The improvement reported from this driftage on the 7th inst. still continues, the branch of yellow ore being the largest yet seen in any of the workings at this depth, and it has mixed with it a beautiful chert, and quartz, the surrounding strata being chiefly composed of garnet, capel, and hornstone, the character of which is very congenial; from these indications and the dip of the ore I think it not too much to expect that it will continue productive for some distance. The 50 east has been driven 4 ft.; total distance from cross cut 7 fms. 4 in. The ground at this point is harder, being composed of capel, garnet, hornstone, and quartz, from which water is percolating freely, also yielding yellow ore and arsenical muddle in saving quantities.

C SHAFT. The cross cut north from intermediate level east has been driven 3 ft. 6 in.; the ground is very favourable for the production of ore, small quantities of both yellow and black ore being met with. There is a slight improvement here this week. The stope in the back of intermediate level east is yielding ore in more than plying quantities, the strata being very conducive to the production of ore, and provides well for an improvement. The 40 stope on north part of lode has slightly improved this week. The stope in the bottom of the 31 west, south part of lode, is showing a good deposit of black ore, around which the ground is easy, and favourable for production. The water wheel was stopped yesterday to remove a defective crank and replace it with a new one, and at the same time we changed the machinery from the long stroke to the short stroke, this was completed at 2 P.M. to-day. In consequence of this stoppage the distance driven at 30 is less than it otherwise would have been, and it has also effected the quantity of ore raised. The pay and settings passed off satisfactorily.

BLT HILLS.—S. Bennett, A. Gripe, Dec. 2: The lode in the rise above the 30 is getting into the unsettled—or what is technically called "floory"—ground, and is not so productive as it has been. In the rise on the gossan the northern section of the lode has not yet been reached. Since the heavy rains in the early part of the week the bottom of the mine has been flooded, and the water has, ever, much abated, and the shaft is now being raised. The water has been employed in driving the 30 east, on the north lode, from the Penhalls boundary; the lode here seems again improving, and we hope soon to find it as productive as it is just behind the present end.

BODIRIS.—H. Hotchiss, Dec. 14: I have received the invoice of the tramway, and shall get them on the mine and laid down in the 60 yard level without delay. In the cross cut driving south towards Messy-Pwll lode we have an important change—the ground has become soft and easy for driving, and is composed of clay, or coarse of lime, chert, and boulders of limestone, and I am of opinion we are in the vicinity of a "sawlow" or flat of ore. I should not be surprised if we met upon a deposit of ore here. The 45 yard level, driving east, is not looking so well for lead just now, but is improved for blende; the lode is well defined, and its matrix all that can be desired. In a previous report I anticipated meeting with another run of lead in the 30 yards level, driving east. This level is now producing fully 10 cwt. of lead per fathom, and steadily improving as we near the junction with Crading lode. Upon the hanging side of the lode, and in a rather flat position, is a bed of shale similar to that under which, in the adjoining Westminster Mines, such much of our waste ore is thrown; there is, many reasonably expect something valuable in this part of the mine, and long.

CALDBACK FIELDS.—J. Pollock, Dec. 9: The stope in back of the 10 requires opening west and by driving a level. The stope is split into branches of lead ore. We have just commenced a stope in bottom of the 30 worth 1 ton per fathom. The stope in back of the 8 is exceedingly hard and poor for lead. We purpose sampling on Tuesday next 10 tons of lead ore.

CAI HEDRAL.—J. Mitchell, Dec. 11: The appearance of the lode in the engine-shaft is very much improved, with good yellow ore coming in the western end of the shaft. The lode in the 12 west is also looking better, and longer, producing good stones of ore; I think before long the lode in this end will become much more valuable. The lode in the 42 east is 2 ft. wide, of prill, gossan, and spar, driving for 401 per fathom. The other parts of the mine are just as when reported last.

CATHEDRAL.—Joseph Mitchell, Dec. 11: The lode in the engine-shaft is looking fully as well as when last reported on, showing unmistakable signs of soon becoming a course of very good copper ore of great value and permanency. The lode in the 42 east is very much improved, and is now driving, producing at present rich stones of grey and yellow ore, and letting out a large quantity of water, and we commenced last night to sink the shaft again; the ground in the shaft is of a most favourable character for the production of lead ore, and we are breaking some nice stones of lead from the shaft. The lode in the 25 east, driving south, is still worth 10 cwt. of lead per fathom, with a most promising appearance for a further improvement; the ground has been stope from the bottom of the 15 for many fathoms in advance of the 25, and where the lode was worth in some places 1 ton of lead ore per fathom. I believe that you may rely on having a lode of the same or more value in the 25 and as it advances south. The lode in the 15 is not looking quite so well, but is still worth 11 cwt. of lead per fathom, but it is looking much more promising for the production of lead this morning than I have ever seen it before; the lode is 8 ft. wide, and producing some good lumps of lead. We have been washing and picking the blende, and, weather permitting, we shall begin next week to cart it down to the crusher, and have a parcel ready for sale as soon as possible. I estimate we have full 12 tons broken, or it may be a ton or so more; I believe it will yield well, and fetch a good price.

CLEMENTINA.—W. Bennett, Dec. 13: The engine-shaft is sunk 5 ft. below the 25; we should have sunk 2 ft. more had it not been for the 12 ft. of the door and windows of the shaft, which, however, were speedily replaced by pillars, and we commenced last night to sink the shaft again; the ground in the shaft is of a most favourable character for the production of lead ore, and we are breaking some nice stones of lead from the shaft. The lode in the 25 east, driving south, is still worth 10 cwt. of lead per fathom, with a most promising appearance for a further improvement; the ground has been stope from the bottom of the 15 for many fathoms in advance of the 25, and where the lode was worth in some places 1 ton of lead ore per fathom. I believe that you may rely on having a lode of the same or more value in the 25 and as it advances south. The lode in the 15 is not looking quite so well, but is still worth 11 cwt. of lead per fathom, but it is looking much more promising for the production of lead this morning than I have ever seen it before; the lode is 8 ft. wide, and producing some good lumps of lead. We have been washing and picking the blende, and, weather permitting, we shall begin next week to cart it down to the crusher, and have a parcel ready for sale as soon as possible. I estimate we have full 12 tons broken, or it may be a ton or so more; I believe it will yield well, and fetch a good price.

COMBARTIN.—C. H. Maude, Dec. 14: Harris's shaft is now cleared 9 fms. In all probability the shaft will reach the first level in the coming week, and not more than 10 fms. from the lode. The water in the shaft is now as low as possible, and we are shortly to be in a position to set tribute pitches and continue the shaft to the 20, where, no doubt, good results will be met with.

GWM ELAN (NEW).—W. Galsworthy, Dec. 9: The produce of the various burials throughout the mine is undiminished since I wrote you last. We are carting the blende on to station as fast as possible.

GWYTHIR.—Dec. 18: In Michael's level west, on the new lode, the lode is 1 ft. wide, composed of spar and blende, but poor for lead ore. In Michael's cross cut north the ground is in good shape for driving. In Michael's level east, on the new lode, the lode is 1 ft. wide, composed of spar and blende, but poor for lead ore. In Michael's level west, on the new lode, the lode is 1 ft. wide, composed of spar and blende, but poor for lead ore. In Michael's level east, on the new lode, the lode is 1 ft. wide, composed of spar and blende, but poor for lead ore.

DE BROOK.—J. Phillips, Dec. 13: In Wilson's shaft, below the 35, the ground is favourable, and good progress is being made. The 35, driving east of Wilson's shaft, is producing fine stones of lead ore. The lode here is only a portion of the lode in the 35, and is not so good as the lode in the 35. The lode in the 35 is strong and encouraging, and will produce from 20 to 35 cwt. of lead ore per fathom. The stope in the back of the 25, east of rise, will produce 2 tons lead ore per fathom. The stope at the junction is without change to notice. Pretty fair progress is making in the dressing department, and I hope by the end of next week to have several tons of lead ore towards the sampling.

DENBIGH-CHIRE CONSOLIDATED.—J. Pryor, Dec. 14: I have spent the whole of this day at the mine, and my report is as follows:—The late heavy rains have greatly interfered with the general workings, more particularly so in the eastern portion of the mine, but I am glad to say that all hands are now at work, and the water kept under by only four strokes per minute of the engine. The 112 East, South Cross cut: We have not yet met with any change; the ground continues hard, which makes progress slow. The 112 West, Parry's Lode: This end is becoming more settled, and in every way more promising. We have now got nearly out of the cavity, and in the hanging side of the lode to-day there are to be seen two big patches of lead ore. The ground is so favourable that anyone would say an abundance of ore must be close to us. From No. 1 rise to-day we are getting some good looking stuff. In No. 2 rise, I am pleased to say, the ore is making upwards fast, and the lode is wide, and we are not taking the whole of the ore ground with us. We are also busy in re-dressing and re-leveling the whole of the underground workings, which we shall finish to-morrow, and which will, I trust, throw great light upon our future operations.

DEVON GREAT CONSOLS.—James Richards, Dec. 15: Wheel Anna Maria, Engine Shaft: In the 60 fms. level west, and west of Jeffery's cross cut, on the new lode, the lode is 18 in. wide, consisting of quartz, capel, and muddle. Nothing has been done in Blackwell's shaft, on the new south lode, owing to quickness of water from surface; we hope, however, to resume sinking in the course of next week.

WHEEL JOSHIAH, RICHARDS'S ENGINE-SHAFT: This shaft is in regular course of sinking below the 280, the ground at present proving hard, and progress being consequently slow. In Castle's rise, in the back of the 60 west, the lode is 5 ft. wide, composed of gossan, muddle, capel, and ore worth 3 tons, or 91 per fms.

WHEEL EMMA, THOMAS'S ENGINE-SHAFT: In the 145 east the lode is 3 ft. wide, composed of muddle, capel, quartz, and a little rich ore. The ground is now easier for exploring, and the lode is more promising than for some considerable time past. There is no change in either of the cross cuts. New Shaft, New South Lode: At the 135 plates are being cut, and air pressure is being made; the lode is of the same value for length of shaft—301 per fathom. In the 180 east 4 ft. of the lode only is being carried, which part is looking well, being worth 6 tons of ore, or 251 per fathom. In Gorrell's winze, sinking below the 160 east, the lode is disturbed by a slide, and for the present is not so good; it is, however, still a good course of ore, worth for length and width carried—9 ft. long and 5 ft. wide—10 tons, or 401 per fathom. This may only be considered as a temporary alteration in the value of the lode. In the 145 east the lode is 4 ft. wide, and worth 5 tons of ore, or 151 per fathom; the lode here is also healthier, and promises improvement. Cocking's winze, sinking below the 145 east, the lode is a good course of ore, worth for length of winze—9 ft.—10 tons, or 401 per fathom. In the 130 east the lode is 3 ft. wide, and worth 6 tons of ore, or 241 per fathom. In Bickle's winze, sinking below the 130, immediately to the west of Tregy's cross cut, the lode is still worth for the length carried—9 ft.—6 tons of ore, or 241 per fathom. The lode in the 115 east is still worth 3 tons of ore, or 101 per fathom.

DUBBY SYKE.—W. Tallentire, Dec. 8: Dubby Syke Level: We have intersected part of vein strength with this level, and strong indications that the lode is still in the level. The lode is still in the level, and strong indications that the lode is still in the level. The lode is still in the level, and strong indications that the lode is still in the level.

EAST CHIVERTON.—R. Southey, Dec. 11: Capt. Tonkin was underground with me last Friday, and expressed himself highly pleased with what is doing. The lode in the bottom end is looking very kindly, and producing some very good work. He, Capt. Tonkin, liked the lode very much.

EAST DARREN.—Dec. 12: The 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom. The lode in the 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom.

EAST DARREN.—Dec. 12: The 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom. The lode in the 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom.

EAST DARREN.—Dec. 12: The 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom. The lode in the 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom.

EAST DARREN.—Dec. 12: The 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom. The lode in the 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom.

EAST DARREN.—Dec. 12: The 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom. The lode in the 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom.

EAST DARREN.—Dec. 12: The 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom. The lode in the 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom.

EAST DARREN.—Dec. 12: The 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom. The lode in the 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom.

EAST DARREN.—Dec. 12: The 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom. The lode in the 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom.

EAST DARREN.—Dec. 12: The 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom. The lode in the 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom.

EAST DARREN.—Dec. 12: The 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom. The lode in the 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom.

EAST DARREN.—Dec. 12: The 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom. The lode in the 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom.

EAST DARREN.—Dec. 12: The 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom. The lode in the 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom.

EAST DARREN.—Dec. 12: The 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom. The lode in the 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom.

EAST DARREN.—Dec. 12: The 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom. The lode in the 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom.

EAST DARREN.—Dec. 12: The 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom. The lode in the 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom.

EAST DARREN.—Dec. 12: The 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom. The lode in the 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom.

EAST DARREN.—Dec. 12: The 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom. The lode in the 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom.

EAST DARREN.—Dec. 12: The 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom. The lode in the 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom.

EAST DARREN.—Dec. 12: The 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom. The lode in the 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom.

EAST DARREN.—Dec. 12: The 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom. The lode in the 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom.

EAST DARREN.—Dec. 12: The 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom. The lode in the 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom.

EAST DARREN.—Dec. 12: The 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom. The lode in the 130, west of Skinner's shaft, has been driven 1 fms. 4 ft., in a lode 5 ft. wide, chiefly composed of a dark clay slate, carbonate of lime, and lead ore, yielding 10 cwt. of lead ore, or 101 per fathom.

of No. 1 cross vein continue much as they have been for ore for some time; they are yielding about 12 cwt. of ore per fathom, mostly crusher work. In cutting west from No. 2 cross vein we have got into the east and west vein going west; it is very poor as yet this way, but yielding some saving work. We see nothing of any more strength going south, so it is probable that which we had before is the No. 2 cross vein. The end of east and west vein going east has been poor the latter part of this week; it is rather irregular, sometimes a few days good and then poor for a fathom or so. The stope on the No. 2 is worth about 8 cwt. of ore per fms., and the stope on the east branch 12 cwt. per fathom. We have sent a wagon of ore to Alston (7 tons 4 cwt.), and I expect the carts will take 12 bins more to-day and to-morrow. The millwright is just finishing with the agitator, and we shall have it to work this forenoon.

GREEN HURTH.—W. Vipond, Dec. 11: The stope on No. 1 west branch is set to two men, at 421 per fathom. The stope on No. 2 branch is set to two men, at 421 per fathom. The end of No. 2 cross vein is set to two men, at 611 per fathom. The new east and west vein is set to four men, to drive 4 fms. per fathom. The stope on No. 2 cross vein is set to two men, at 511 per fathom. The stope on the east branch is set to two men, at 651 per fathom. We have finished the delivery of another wagon of ore to-day, containing 7 tons 4 cwt. We have fine fresh weather here yet, well suited for ore dressing.

HARWOOD.—W. Tallentire, Dec. 8: Herdship: By the present appearance of the end in No. 3 east we shall very soon intersect another north and south vein; the beds seem to run down fast, and other marked indications. North on No. 2 ably better this week, and yields very simple samples of lead ore.

HINGSTON DOWN CONSOLS.—J. Richards, Dec. 7: Bailey's Shaft: In the 160 west the lode is disordered by cross branches, and is for the present not so productive, being now worth 6 tons of ore, or 181 per fathom. In the stope in the bottom of the 150 west, east of Nichol's winze, the lode continues worth 6 tons of ore, or 241 per fathom. The lode in the stope in the back of the 150 west is still worth 5 tons of ore, or 151 per fathom. In the 150 west the lode is large, 4 ft. of which being carried is composed of capel, muddle, quartz, and a little ore. The lode in Chynoweth's rise, in the back of the 140 west, is still worth 6 tons of ore, or 241 per fathom. The pitches throughout the mine continue to produce fair quantities of ore. We sampled on Friday last (computed) 150 tons of ore, for sale on the 21st inst.

J. Richards, Dec. 14: Bailey's shaft is in regular course of sinking below the 160 by the side of the lode, and fair progress, considering the hard nature of the ground, is being made. Bailey's Shaft: The lode in the 160 west is 5 ft. wide, and produces 5 tons of ore, or 151 per fathom. In the stope in the bottom of the 150 west, east of Nichol's winze, the lode is worth 6 tons of ore, or 241 per fms. In the 150 west the lode is of good size, 4 ft. wide, composed of quartz, muddle, capel, and produces occasionally rich stones of ore. The lode in the stope in the back of the 150 west is worth 6 tons of ore, or 181 per fathom. The lode in Chynoweth's rise, in the back of the 140 west, is 3 ft. wide, and worth 4 tons of ore, or 151 per fathom. The pitches throughout the mine are still holding down.

LADYWELL.—A. Waters, Dec. 11: There is no change of note in the 32 driving south of New Britain lode, the ground continuing hard, and difficult for progress. The ventilation is being improved, and the men are now driving out a winze of the 16, driving north, is now into a small horizontal cavity, which we can see over 2 fms.; and I am hoping that we shall soon have a run of soft ore ground to work upon here. The adit south is into a section of hard blue slate rock, quite free from gossan, the spar being quite white, and the ore bright, soft, and highly crystallized, very different from anything seen before south of the engine shaft. We shall see more of this point by next week. The water is still in the new south shaft; and I doubt our ability to carry on the sinking until next spring, or the beginning of summer.

LOVEL (THE).—J. Prisk, Edward Kemphorn, Dec. 14: The following is a copy of our setting which took place on Saturday, Dec. 9:—The 33 to drive east on south lode, by nine men, at 161 per fathom; lode 9 ft. wide, worth 231 per fathom. The 39 to drive east on south lode, by six men, at 161 per fathom. We have a patch of granite in this end which came over from the north towards the south wall, which has disordered the lode for the present, but we hope the change is only temporary, especially as we have been driving a winze of the 16, driving north, is now into a small horizontal cavity, which we can see over 2 fms.; and I am hoping that we shall soon have a run of soft ore ground to work upon here. The adit south is into a section of hard blue slate rock, quite free from gossan, the spar being quite white, and the ore bright, soft, and highly crystallized, very different from anything seen before south of the engine shaft. We shall see more of this point by next week. The water is still in the new south shaft; and I doubt our ability to carry on the sinking until next spring, or the beginning of summer.

LOVEL (THE).—J. Prisk, Edward Kemphorn, Dec. 14: The following is a copy of our setting which took place on Saturday, Dec. 9:—The 33 to drive east on south lode, by nine men, at 161 per fathom; lode 9 ft. wide, worth 231 per fathom. The 39 to drive east on south lode, by six men, at 161 per fathom. We have a patch of granite in this end which came over from the north towards the south wall, which has disordered the lode for the present, but we hope the change is only temporary, especially as we have been driving a winze of the 16, driving north, is now into a small horizontal cavity, which we can see over 2 fms.; and I am hoping that we shall soon have a run of soft ore ground to work upon here. The adit south is into a section of hard blue slate rock, quite free from gossan, the spar being quite white, and the ore bright, soft, and highly crystallized, very different from anything seen before south of the engine shaft. We shall see more of this point by next week. The water is still in the new south shaft; and I doubt our ability to carry on the sinking until next spring, or the beginning of summer.

LOVEL (THE).—J. Prisk, Edward Kemphorn, Dec. 14: The following is a copy of our setting which took place on Saturday, Dec. 9:—The 33 to drive east on south lode, by nine men, at 161 per fathom; lode 9 ft. wide, worth 231 per fathom. The 39 to drive east on south lode, by six men, at 161 per fathom. We have a patch of granite in this end which came over from the north towards the south wall, which has disordered the lode for the present, but we hope the change is only temporary, especially as we have been driving a winze of the 16, driving north, is now into a small horizontal cavity, which we can see over 2 fms.; and I am hoping that we shall soon have a run of soft ore ground to work upon here. The adit south is into a section of hard blue slate rock, quite free from gossan, the spar being quite white, and the ore bright, soft, and highly crystallized, very different from anything seen before south of the engine shaft. We shall see more of this point by next week. The water is still in the new south shaft; and I doubt our ability to carry on the sinking until next spring, or the beginning of summer.

LOVEL (THE).—J. Prisk, Edward Kemphorn, Dec. 14: The following is a copy of our setting which took place on Saturday, Dec. 9:—The 33 to drive east on south lode, by nine men, at 161 per fathom; lode 9 ft. wide, worth 231 per fathom. The 39 to drive east on south lode, by six men, at 161 per fathom. We have a patch of granite in this end which came over from the north towards the south wall, which has disordered the lode for the present, but we hope the change is only temporary, especially as we have been driving a winze of the 16, driving north, is now into a small horizontal cavity, which we can see over 2 fms.; and I am hoping that we shall soon have a run of soft ore ground to work upon here. The adit south is into a section of hard blue slate rock, quite free from gossan, the spar being quite white, and the ore bright, soft, and highly crystallized, very different from anything seen before south of the engine shaft. We shall see more of this point by next week. The water is still in the new south shaft; and

trial of these oysters will soon convince the sceptic that they are fully equal in favour to those sold at a much higher price. Possibly some difficulty may, for time, be experienced in obtaining these oysters, but Mr. Brightman, the manager of the Anglo-Portuguese Oyster Fisheries, forwards sample barrels containing 50 oysters for 5s. 6d. This is another of those praiseworthy efforts to supply oysters at a cheap rate to the London public which deserves encouragement.

* With this week's Journal a SUPPLEMENTAL SHEET is given, which contains:—Original Correspondence: Iron Mining, Making, and Commerce: The Flora of the Tropics, &c.: On the Origin of Metals: Rossa Grande Gold Mining Company: Don Pedro North del Rey Mining Company: Rock-Boring Machinery in Cornwall: Ammonia Engines: The Tin Trade: Tin, and Tin Mining (R. Fredrick): Gold Mining as it is—the Clough Company (C. J. Harvey): Slate, and Slate Quarries: Legitimate Mining in Clough (R. Shire): White Cliff Mines, Llanrwst: Llanrwst Lead Mine (C. R. Shire): Knapplough, Cornish Mining: Devon Consols: North Laxey Mine; Mine Agents: Carr Breck and Tincroft; New Consols; the Pneumatic Stamps (S. Harris); The Devon and Cornwall Copper, Manganese, and Manganiferous Iron Ore Company—The Tin Trade—Holmshurst, its Fortunes and Misfortunes—Foreign Mining and Metallurgy—Post Office London Directory—Pocket Book of Compound Engines—Let's Diaries—High-Pressure Expansive Six Cylinder Engines (Illustrated)—Smithfield Club Show—Foreign Mines—Meetings of Don Pedro, Almada and Tinto, Littledean Woodside, and Co-operative Coal Companies, &c.

TO THE METAL TRADE.

FOR COPPER, TIN, LEAD, &c., apply to—
MESSRS. PELLY, BOYLE, AND CO.,
SWORN METAL BROKERS,
ALLHALLOWS CHAMBERS, LOMBARD STREET, LONDON.
(ESTABLISHED 1849.)

The Mining Market: Prices of Metals, Ores, &c.

METAL MARKET—LONDON, DEC. 15, 1876.

IRON.	£ s. d.	£ s. d.	TIN.	£ s. d.	£ s. d.
Pig, G.M.B. f.o.b. Clyde, 2 1/2 10—			English, ingot, f.o.b. ...	81 0 0—	
" Scotch, all No. 1 ... 3 1 0—3 11 6			" " bars ...	82 0 0—	
Bars, Welsh, f.o.b. Wales, 6 5 0—6 7 6			" " refined ...	83 0 0—	
" " in London, 6 15 0—			Australian ...	75 0 0—	
" Stafford, ... 8 0 0—10 0 0			Banco ...	77 0 0—	
" in Tyn or Tees ... 6 0 0—			Straits ...	76 0 0—	
Swedish, London, 10 10 0—11 0 0					
Rails, Welsh, at works, 5 7 6—5 10 0					
Railway chairs ... 5 7 6—5 10 0					
" spikes ... 5 7 6—5 10 0					
Sheets, Staff., in London 9 15 0—					
Plates, Staff., in London 9 10 0—					
Hoops, Staff., 8 15 0—					
Nail rods, Staff., in Iron, 7 15 0—8 0 0					
STEEL.					
English, spring, ... 14 0 0—23 0 0					
" cast ... 20 0 0—45 0 0					
Swedish, ... 17 0 0—					
" fast ... 17 10 0—19 10 0					
LEAD.					
English, pig, common, 22 5 0—					
" " L.B. ... 22 10 0—					
" " W.B. ... 23 0 0—					
" sheet and bar, 23 0 0—					
" pipe ... 23 10 0—					
" red ... 21 1 0—24 0 0					
" white ... 24 15 0—25 10 0					
" patent sheet ... 24 15 0—25 10 0					
Spanish ... 22 0 0—					
QUICKSILVER.					
Flasks of 15 lbs., ware, 8 5 0—8 10 0					
SPELTTER.					
Shannon or Rhensish ... 22 0 0—					
English, Swansea ... 22 0 0—					
Sheet zinc ... 26 0 0—27 0 0					

REMARKS.—The past week has presented no new feature of any importance, and a quiet feeling has prevailed in most metals; at the same time, although the demand has been limited, and little or no increase is really anticipated this month, yet prices have not suffered materially, and the disinclination on the part of buyers to buy has been met by an equal disinclination on the part of sellers to sell, and a difficulty has thus arisen in endeavouring to reconcile these different views, and, as is too often the case, terminates in no very favourable results on either side. This being the time of year when consumers invariably contract their engagements, it must have been pretty evident to the most casual observer that business during this month would in all probability be very restricted, and more particularly as the gravity of the political situation in regard to the ultimate issue of the Eastern question would undoubtedly influence the majority of speculators to act cautiously, and to suspend all operations of any magnitude until a more convenient season. Indeed, the most speculative of speculators, upon the slightest reduction, would seriously cure to make a venture for a rise at such a dull and precarious period, and it must be, to say the least, a very sanguine buyer who would anticipate realising any adequate profit commensurate with such an enormous risk, and there cannot be two opinions with regard to the prevalence of abstaining altogether for the present from speculation. This is, surely, the most critical juncture of European politics, and the decision of the Conference is naturally waited for with the deepest amount of anxiety, and should it fail to secure peace (and he it remember that Austria has no faith in its success, neither would it seem that some of the others have much, judging from the immense preparations for war by Russia, Turkey, and even England), then the fate of our markets will be sealed, and all hope of any general improvement taking place yet awhile will be abandoned, and the recovery which has been gained in the prices of some few metals we fear will soon be lost, and perhaps a greater depreciation than before may be the result. Nothing we are sure would afford greater satisfaction to the several commercial communities than to have peace, for there are quite enough of other obstructions to impede the ordinary progress of commerce and the development of industrial pursuits without the additional burden of war, and all its accompanying horrors and drawbacks. But we have at last reached that stage of the proceedings when the curtain will be drawn, and we shall have to face the stern realities of fact. It will be known in a few days whether all these vast preparations for war are a mere delusion or earnest of the nation's intentions. Whether they will attempt to carry out by force of arms what has failed to be accomplished hitherto by diplomacy and good will, or whether, contrary to general expectations, Turkey will quietly submit to foreign occupation of her territories. This in itself might, perhaps, give effect to certain reforms, but the most important question is would it give an effectual guarantee for a durable peace? That is what the commercial world is so desirous of knowing, and upon which in great measure depends the prosperity of the country during the ensuing year. Under all circumstances it is better by far to be on the safe side, and prepared for the worst in case war should break out, than to be lulled by the false promise of peace, and the proclamation of the glad tidings will be none the less welcome, for the prospects of a prosperous new year will be increasingly strengthened.

COPPER.—The amount of business reported has been of a trifling character, and prices have declined less upon forced sales than from want of demand to uphold the market. The reduction has been trifling, but the weakness in prices continues, and while there is such a complete absence of orders, and an entire suspension of speculative purchases, it cannot well be otherwise. At the same time, although holders may not take quite such a sanguine view of the market as formerly, yet they show no particular anxiety to effect sales at current rates, and therefore it may be assumed that they are hopeful of the future. The display of firmness on the part of sellers is often essential to the preservation of prices when once a transient rise has been effected, and frequently at such times, by desiring to submit to more than slight reductions, or abstaining altogether from making sales, a sacrifice is prevented or an immediate loss avoided, and time is thus gained, whereby to allow the apprehensions of buyers and to shift the position of the market more gradually and orderly. Buyers, however, at the present time entertain an equally strong opinion that there is no feature in the market to warrant a rise, and therefore they can afford to take their own time in buying. The state of the market is evidently not conducive to speculation, and consumers have no occasion to hurry at this dull season of the year, and merchants generally would sooner keep their goods clear for a few weeks to come. The market closes at the following prices:—75, 10s. 6d. Chilli; 85, 10s. Wallaroo; 84, 10s. Barra; 10s. 6d. to 12s. 6d. best selected, 52, to 54.

IRON.—It is a very fortunate circumstance that a slightly better demand has sprung up lately, and thus enabled makers to book a few orders, that will give some employment to their men during this month. Of all months in the year this is the one when employment is wanted most, as expenses increase with the season; and if the winter can only be waded through with even a moderate share of work, it will be most acceptable. The month of December, however, is proverbially dull; and although there is a little more doing just now, yet too much reliance cannot be placed upon its continuance, and every effort should be made to endeavour to improve it, and on no account to do anything that will check it. For instance, to attempt to raise prices as we have had occasion lately to complain of in respect of some few metals doing, that is an expedient which certainly ought not to be resorted to at the present time. There exists no justifiable grounds for such a move, and before such a movement is made the demand must become more general and substantial. No increased business to any extent will probably be obtained while buyers can procure iron elsewhere below our prices. Two rival shops selling at different prices the same description of articles, equal in quality, and not long complete successfully together, and unless the trade is allowed to depart from the one, there is no alternative but to reduce prices to a uniform level, by which means a fair share of the business is divided between the two. England is situated with regard to Belgium, both countries can produce a useful quality of iron for all ordinary purposes, but for a considerable time past Belgium has carried off the foreign orders, besides some for the home trade, at cheaper rates than the English ironmaster has felt disposed to take them; and if this is going to be permitted for a much longer period, England will find that she will have to shut up her mills altogether. It certainly seems a most extraordinary circumstance that iron can be imported into this country cheaper than it can be bought from our own producers; and it reflects great want of judgment and manage-

ment on their part that the trade should have been allowed to fall into this unsatisfactory state. It is, however, no use crying over spilt milk, and that which has gone cannot be recalled; but it is strange, indeed, if something cannot be devised whereby the iron trade of the country for the future might be saved; but of course everybody is going to sleep over it, because it is no one's business in particular to see to it, the time will come when England, rousing herself sufficiently to behold the mischief wrought, will find that the activity of her little neighbour has stolen a march upon her, and most effectually shut her up. In Scotch pigs makers' iron are slightly lower than those of last week. The warrant market has been slightly variable, and m.n.s. are now quoted 59s. the month, or 58s. 10d. cash.

Week ending Dec. 11, 1875	Tons	8,617
Week ending Dec. 9, 1876	Tons	8,772
Decrease	Tons	245
Total decrease for 1876	Tons	72,204

Imports of Middlesbrough pig-iron into Grangemouth:—	Tons	4,330
Week ending Dec. 11, 1875	Tons	5,620
Week ending Dec. 9, 1876	Tons	1,290
Decrease	Tons	67,776
Total increase for 1876	Tons	67,776

LEAD.—The position of this market has been very well maintained, and the great improvement in the Eastern Exchanges has created an improved demand for shipment to these parts. Otherwise the trade is rather quiet, especially for home consumption.

SPELTTER.—This metal continues to assume a downward tendency, and the price has again declined another 5s. per ton.

STEEL.—A little demand exists for foreign, but English still dull. QUICKSILVER.—No change either in the price or position of this metal. 8, 10s. being required for the Spanish Government supplies, but other importations could be bought at somewhat lower.

TIN PLATES.—Sellers are firm at quotations, and looking for some improvement. The enquiries for the American market are larger, but, as usual, the price offered is so low that in many instances makers are compelled to decline the orders. The present prices cannot possibly interfere with consumption, as they are already considerably below the average.

TIN.—The business on Saturday last in this metal was limited, and only a parcel of 18 tons of Straits was reported at 77, 10s. cash, the market assumed a quiet appearance, but it was stated that sales were practicable for forward delivery at 5s. below the cash price. Australian presented no new feature, there being sellers at 76, cash. The market on Monday gained strength, and 77, 10s. to 78, was made for Straits, the former price for cash, and the latter for January—February delivery: 50 tons of Australian were sold to arrive at 78, and 10 tons same price for cash. On Tuesday slightly better prices were obtained for Straits, 78, being paid for cash, and 78s. 6s. forward. Nothing about 76, transpired in Australian either for cash or for arrival. The market in the earlier part of the day seemed to be stronger than at the close, and the quietude prevailing on Wednesday was a confirmation of its exhaustion, and Straits were quoted down to 77, and no mention of quantity sold, Australian, not having participated in the previous advance, did not suffer by the depreciation in Straits, but remained stationary at 78, cash. On Thursday the market was easier, at 78, to 79, for cash and forward Straits, and 78, 10s. for Australian. To-day the market has been irregular, with business to some slight extent at 78, in Straits, and 78, in Australian.

THE IRON TRADE.—(Griffiths's Weekly Report).—Friday Evening. The Glasgow market has been steady this week. The closing price in Glasgow this afternoon for G.M.B. warrants is 78s. 9d., buyers, an advance since last week of 4s. 4d. per ton. We quote makers' iron:—Gartshore, No. 1, 65s. 6d.; No. 3, 68s. 6d.; Culmoss, No. 1, 70s. 8d.; No. 3, 69s. 6d.; Clidder, No. 1, 68s. 6d.; No. 3, 70s. 8d.; London, No. 1, 67s. 6d.; No. 3, 68s. 6d.; Summerlee, No. 1, 64s. 6d.; No. 3, 65s. 6d.; Monkland, No. 1, 59s. 6d.; No. 3, 57s. 6d.; f.o.b. Glasgow: Glenarnock, No. 1, 64s. 6d.; No. 3, 58s. 6d.; Eglinton, No. 1, 60s. 6d.; No. 3, 60s. 6d.; f.o.b. Ardrossan: Shotts, No. 1, 65s. 6d.; No. 3, 59s. 6d.; f.o.b. Leith: Kennel, No. 1, 60s. 6d.; No. 3, 55s. 6d.; f.o.b. BoNESS. We have had a quiet market this week. The state of things is likely to continue now until Quarter Day. People will be engaged in stock-taking, with the view of being ready to give out their orders at Quarter Day. We have to report a contract for 26,000 tons of steel rails made this week. The rails are for New South Wales. The order was divided between the Mersey Steel and Iron Company of Liverpool, and the West Cumberland Steel and Iron Company. We believe another firm (the Landore) also had a part. The price was a little under 7s. 10s. Two other parcels of steel rails are on the market for foreign railways. The business done this week in bars and plates is only moderate. We have orders here for hoops, but the price of this class of iron is cut down to sharp competition.

The demand for boiler-plates still flags. We have not had so much buying in sheet iron this week; the orders in the hands of the makers, however, keep the market for this class of iron. Nail rods are in request. The price is very firm. Makers are demanding from 2s. 6d. to 3s. 6d. per ton more money. Tin-plates are firmer, and a better state of things is gradually being developed. No doubt tin-plates will improve. We may here remark that there will be no quarterly meetings of the tin-plate makers in January. For the present the trade have decided to abandon these quarterly meetings. A committee is appointed who will watch the interests of the trade, and if necessary, as usual, call a meeting through their old respected chairman, Mr. Woodroff. Quarter Day will be held at Birmingham the second Thursday in January.

Messrs. SAYFORD and BIRD—COPPER: Foreign descriptions are neglected. English manufactured is slightly better than German. It is in limited demand, but steady in price. Australian at 78, and Straits at 77, 10s. English ingots quiet at 40. The business of the day is chiefly in coke-quantity. ANTIMONY remains firm. QUICKSILVER dull.

Messrs. FIDLEY and ABELL—GOLD: As anticipated in our last further amounts have been taken from the Bank for transmission to New York and Germany, the total sent away being 658,000. The arrivals this week have been unimportant. They comprise 37,500, from West India, 51,000, from India, and 18,500, from the Pacific. These amounts have also been taken for export. The Tagas takes 64,000, to the Brazil, and the P. and O. steamer 21,500, to India. SILVER: The market has been in a most excited state during the past week, and prices have again risen rapidly. The supplies have been very small, only 63,000, from Germany, about 30,000, from New York, and 32,000, from the Pacific. This last arrival was sold at 57 1/2d. per ounce on the 12th inst., or a rise of no less than 1 1/2d. per ounce from last week. The high rates at which the Council drafts were disposed of yesterday have caused a still further improvement in price, and sales have been effected at 58 1/2d. to 58 3/4d. per ounce. The 20,000, just brought by the West Indian steamer has not yet been disposed of. The Peninsular and Oriental steamer leaving to-day takes 154,000, to India.

THE MINING SHARE MARKET has been particularly quiet this week, and the dealers are chiefly occupied with the settlement of the fortnightly account.

Tin and Copper Mines, the former especially, are very flat; but one or two lead mines, to which attention seems now to be chiefly directed, are firmer at advanced prices. Most of our quotations are merely nominal.

The shares in the heavy TIN MINES are dull and neglected, and the quotations may be considered quite nominal. Carr Breck, 40 to 42 1/2; Cook's Kitchen, 4 1/2 to 5; Dolcoath, 40 to 42; Tincroft, 21 to 22; East Pool, 11 to 12; Reistation Consols, 104 to 124 6d.; South Condurrow, 7 to 7 1/2; South Crofty, 14 to 15; Wheal Bassets have improved to 17 1/2 to 20; West Bassett, 4 1/2 to 5; West Frances, 5 1/2 to 6; Wheal Agar, 1 1/2 to 2; Wheal Grenville, 20s. to 22s. 6d.; Wheal Kitty St. Agnes, 3 1/2 to 4; Wheal Peewor, 3 1/2 to 3 3/4; Wheal Uyn, 2 1/2 to 3; Wheal Cates, 1 1/2 to 2. Timbering the shaft on the course of the lode from the 50 to the 60 fm. levels has been commenced; the whole lode being stamping work. The 40 and 50 ends are also yielding good tinstuff for the stamps.

Among COPPER MINES, Devon Great Consols are quoted 4 1/2 to 4 3/4; the lode is not looking so well in Gurrell's winze, being temporarily disturbed by a slide; it is, however, still worth 40s. per fathom. The points in operation in the mine are valued in the aggregate at 21 1/2d. per fathom. Wheal Crebor, 2 to 2 1/2; the mine has not been looking as well, but the pioneer level—the 103 east—has slightly improved, and looks promising. Parys Mountain are weak at 10s. to 12s. 6d.; no change has taken place at the mine since last report. East Caradon, 1 1/2 to 1 3/4; Marke Valley, 1 1/2 to 1 3/4; Penrithall, 9s. to 11s.; Prince of Wales, 3s. to 4s., and mine prior; South Caradon, 110 to 120; South Frances, 7s. 6d. to 10s.; West Seton, 32 1/2 to 35. West Tolgus, 62 1/2 to 65; at the meeting next week a dividend similar to the last will probably be declared.

The shares in LEAD MINES are those which are chiefly in demand. Van shares have advanced to 37 1/2 to 40; the sale of lead ores this month (600 tons) realised 16 1/2 to 3s. 8d. per ton, or 97 10d. The Blende (200 tons) brought 4 1/2 to 6s. 1d. per ton, or 82 1/2d. West Chiverton, 18 to 19; the sale of lead ores here realised 14 1/2 to 50 tons at 18 1/2 to 6d., and 50 tons 10s. 2s. 6d. Blende, 5000. Roman Gravels, 13 1/2 to 14; the 106, north of Flat-rod shaft, is worth 1 ton of lead ore per fm. South the lode is worth 2 tons. The stopes are looking as usual. Tankerville shares continue depressed, and leave off 8 1/2 to 9; sinking the shaft has been commenced below the 180. The bottom level end is worth 50s. per fathom. The west lode is worth 32s. per fm. The stopes in the back of the 180 are worth 50s. per fathom. In the same level, east of Smith's winze, the lode is worth 80s. per fathom, and the new winze, below the 167 is worth 100s. per fathom. West of Smith's winze is worth 80s. per fathom. West Tankerville, 1 1/2 to 1 3/4; the sale of lead ores (35 tons) realised 55 1/2 to 6s. 6d.

East Van shares have been firm, and advanced to 9 1/2 to 10; Tempest shaft is now within 9 ft. 6 in. of reaching the 25. Great Laxey are good at 20 to 21. North Laxey, 10s. to 12s. 6d. Glenroy, 1 1/2 to 2, and a fair business done; a good improvement is looked for in the

60 fm. level. Rookhope in request at 16s. to 18s.; the sampling this week will be from 25 to 30 tons of lead ores. Darwent, 4 to 4 1/2; Glyn, 2 to 2 1/2; Van Consols, 1 1/2 to 2; West Craven Moor, 12 1/2 to 13 1/2; Leadhills, 6 1/2 to 7; Aberdunant, 3 to 3 1/2; Asheton, 25s. to 30s.; Bodidris, 1 to 1 1/2; Great Dylliffe, 4 to 5; Herodsfoot, 3 to 4; Ladywell, 20s. to 25s.; Pennant, 5 1/2 to 6; Pennerley, 20s. to 25s.; Llanrwst, 2 1/2 to 2 3/4; West Asheton, 25s. to 30s. Clementina, 35s. to 40s.; the 25 south continues worth 10 cwt. per fathom, and as soon as it gets under the winzes in the ore above good stopping ground will be opened. Combunant, 3 to 4.

FOREIGN MINES.—Cedar Creek, 4s. to 6s. Chontales, 6s. 3d. to 8s. 9d.; the advices this month show a loss of 1907. The gold return is valued at 3007; cost, 4907. Eberhardt and Aurora, 8 1/2 to 9. Exchequer, 1 1/2 to 2 1/2; Flagstaff, 1 1/2 to 1 3/4; Frontino and Bolivia, 1 1/2 to 1 3/4. Javali, 11s. to 13s.; the remittance here is 61 1/2 ozs. of gold, valued at 1466 1/2; costs, 900 1/2. New Zealand Kapanga, 4 1/2 to 4 3/4; Chicago, 6 to 6 1/2; Malpasso, 14s. to 16s.; New Quebrada, 3 1/2 to 4; Pestarena, 4s. to 6s.; Richmond, 8 1/2 to 9 1/2; Santa Barbara, 2 1/2 to 2 3/4. Argentine, 6 to 6 1/2; during the week this mine has obtained an official quotation on the Stock Exchange. Condes of Chilli, 5 to 5 1/2; the first shipment of ore from this mine is due in Liverpool on Jan. 5. Blue Tent, 3 to 3 1/2; San Pedro has advanced to 1 1/2; we hear there is a good discovery at this mine.

The Market for Mine Shares on the Stock Exchange during the week has been dull, apart from the interruption to business by the fortnightly settlement completed on Thursday. The account was not heavy, but, as on several previous occasions, there was a decided scarcity in one or two foreign descriptions. Expectation runs high that with the commencement of the year there will be a steady revival of mining business. The signs are numerous that the improvement has set in, besides which there is the fact that the abnormal supply of surplus capital is becoming smaller, and though this may be due to external influences, the reduction aids the firmness apparent in certain departments of home trade. Towards the close the market both for home and foreign mines was firmer, and prices showed a slight recovery. An important question with reference to dividends is guaranteed by vendors in the High Court of Justice, on Thursday, before Vice-Chancellor Bacon, and decided against the capitalists. The vendors of property to the Welsh Freehold Colliery Company had guaranteed dividends on the share capital for a certain number of years, and vested a portion of the purchase money in trustees to answer the dividend. The fund was not exhausted when the company went into liquidation, and the Vice-Chancellor decided, in effect, that the residue belonged to the creditors of the company, and not to those entitled to the guaranteed dividend.

New Zealand Kapanga, 4 1/2 to 4 3/4; a telegram received during the week from the agent states that he is fixing the pumps in the winze, and will be sinking in gold January 1. There have been many transactions in the shares during the week.

St. John del Rey, 325 to 345; the last telegram received, dated Rio de Janeiro, Dec. 12, states the produce for November at 53,000 oits., of the value of 14,725, the key of the ore being 7 1/2 oits. per ton. Don Pedro North del Rey, 4 to 5; the advices from the superintendent have been to a great extent anticipated by the telegrams. On Nov. 10 preparations were making to fix another wire rope in Alice's level to work with that at present running, so that they may then try to sink. The latest telegram, dated Rio, Dec. 10, states the produce for November at 6,000 oits. Sinking had been resumed, and the pumps were working well.

A large reduction, to come into operation on Feb. 1 next, has been made in the Mexican mining tax. Hitherto the export duty on silver has been 14 per cent.; from the date mentioned it will be 34 1/2 per cent. on silver, and 34 1/2 on gold. This export duty has long been regarded as one of the chief drawbacks to successful mining in Mexico, and the two-thirds reduction determined upon is considered likely to give an impetus to mining in that direction, especially when means of transport for machinery, and increased safety for sending treasure to the coast, shall have been secured.

Argentine, 6 to 6 1/2; the new shaft has been holed to the 44, or bottom of the Pique Mine, and active preparations are being made for sinking in the lode and in the rich course of ore valued at 90 tons per fathom, worth 2 ozs. of gold to the ton. The agent states that the Pontilla, or side lode, where the ore is known to be very rich, will be drained by these bottom workings.

Richmond, 8 1/2 to 9 1/2; the usual weekly telegram received gives the week's run at \$50,000. The refinery this week has produced 200 bars to the value of \$30,000. The manager's report states that ventilation has been effected by boring through No. 1 winze to the 600 ft. level. The 600 drift is to be extended 50 ft. to connect with No. 2 winze, as it is expected that ore will be struck in the drift. A drift started at 33 ft. above the 600 has been extended from No. 1 to No. 2 winze, and 30 feet beyond the latter; the distance thus driven is 160 ft., of which 125 ft. is in good ore, and it is expected that the main body of ore in the 600 will be soon struck. In the upper part of Pot's chamber it was not looking so well as last reported; the south end of the workings has reached limestone, but the northern end was still being continued in good ore, and the lower portions of the stopes are looking well. The new main shaft is to be 16 ft. long by 5 ft. 6 in. wide, in three compartments. The point fixed on for this work is about 1187 ft. distant from the present shaft, the indications in the great lode proving that it is making towards the spot where the new shaft is sinking to meet it. The time is opportune for executing this additional shaft, as the mine can be worked from the 800 ft. level upwards for a long time ahead, and the Lizette tunnel has tapped such a large body of ore on the West Hill side within 200 ft. of the surface. A local paper records the rapid progress making with the trestle work viaduct, which will span the ravine that separates the Richmond works from the road to its mines. The rise of silver to 57 1/2d. is a most satisfactory feature in the prospects of the company, the present price being an advance of 9 1/2d. per ounce on the price obtained last May. A further rise of 2 1/2d. per ounce for silver is still required to restore it to the normal relative value of 1 lb. of silver for 1 oz. of gold, so that any permanent decline from present rates is scarcely probable.

Eberhardt and Aurora, 8 1/2 to 9; work at the new tunnel is progressing satisfactorily; 40 ft. per week is now the average rate of driving, when completed the tunnel will be 6000 ft. long; the mill, after undergoing thorough repair, has again commenced running. Exchequer, 1 1/2 to 2 1/2; the report this week states that ruby silver has been struck both in the 300 and 400 ft. levels, and the stopes are looking well. During the week 68 car-loads of ore were raised. I. X. L., 1 1/2 to 1 3/4; the north drift is in 314 ft. from engine-shaft; there is a large lode in the face, and some good ore. Sinking the shaft is to be continued by day work.

Uth now contains some 90 mining districts, and some 10,000 people engaged in mining. The mines and improvements are valued at from \$15,000,000 to \$30,000,000, and the annual yield of lead, silver, and gold has reached \$5,000,000. Flagstaff, 1 to 1 1/2; there are 125 men employed, and ore is being shipped in considerable quantities; the company have leased the Bay City Tunnel, and are driving it through to tap their ledge. The Utah Mine has made some large strikes of rich ore.

The market for Hydraulic and Gold Washing shares has not exhibited much change, although there has been some amount of business transacted. The news from California shows that a larger area of auriferous gravel will be worked this season, so that the action of the farmers' associations for litigating the right of the miners to discharge their refuse into the rivers, and to which reference is made in another column of this day's Journal, is the more worthy of consideration. It is stated that this industry is every year attaining greater proportions, and that the yield of gold is steadily increasing as more claims are brought into proper condition for washing. There is, thus far, a fair promise of ample water, great activity prevails in different districts, and miners are anticipating a prosperous year. Blue Tent, 3 to 3 1/2; operations here are progressing satisfactorily. The banks upon which work is now going on are in good condition, and continuous returns are looked for, water being abundant. Cedar Creek, 4s. to 6s.; the agent reports that he is quite ready for commencing work at the

Baker claim, and that all other work is in a forward state. Some amount of washing has been going on since the rains commenced, and the superintendent says the prospect is encouraging. Birdseye Creek, $\frac{3}{4}$ to $\frac{1}{2}$; the agent reports that he is about ready for water, and is anticipating an early resumption of washing. Fair progress is being made in driving the Waloupa tunnel.

Lead Mines have been irregular. The less active tone in the early part of the week, consequent to some extent upon the fortnightly accounts, afterwards gave place to more animation and better prices. Van, 37 to 39; the monthly report appears in another column, and is of the usual satisfactory character. The mine continues to open out well. The sale on Thursday—600 tons of lead and 200 tons of blende—realised the large sum of 10,535*l*. Grogwinion, 5 to 5½; the latest reports state that everything is progressing well. Wye Valley, $\frac{5}{8}$ to $\frac{3}{4}$; the 22 fm. level is still improving and opening out a fine course of ore. The winze below the 10 fm. level is worth 6 to 8 tons of lead per fathom. The lode in the new discovery in the adit east is steadily improving. West Wye Valley, 3 to 3½; the new shaft is making good headway, and the levels are being rapidly driven towards it. The ore ground continues to improve. South Cwmystwith, 2½ to 3; at the meeting at Birmingham, on Thursday, a satisfactory report was presented. The mine is stated to be so far advanced in development that dressing machinery is at once to be erected, and sales of lead commenced as soon as possible. Red Rock, 2½ to 2¾; the mine is now in full work, and prospects are considered to be excellent. St. Harmon, 3 to 3½; the late improvements are steadily gaining in value. Penderley, 1 to 1½; the lode in the 130 east is worth 1 ton lead ore to the fathom and very promising. The 120 west is improving, as is the same level east. Other parts of the mine producing as usual. The company sold 60 tons ore on Wednesday, realising 934*l*. 10*s*. Pateley Bridge, 2½ to 3½; the Rake vein, in the 30, is daily improving, as the great course of ore that went down under the 20 is approached. The end going north-west is also looking favourable as it nears the bed of ore passed through in the shaft. Other parts of the mine unchanged.

Subjoined are the closing quotations:—
Ashington, 1½ to 1¾; Carr Bra, 40 to 42; Devon Great Consols, 4½ to 4¾; Dolcoath, 40 to 41; East Caradon, 1 to 1½; East Van, 9½ to 9¾; Glyn, 2½ to 2¾; Great Lacey, 19½ to 20½; Great Vor, 1½ to 1¾; Great West Van, ¾ to ¾; Hington Down, ¾ to ¾; Leadhills, 6½ to 7; Marke Valley, 1½ to 1¾; Parys Mountain, 9½ to 11½; Pateley Bridge, 2½ to 3; Pennerley, 1 to 1½; Penrith, 8 to 10*s*; Roman Gravel, 13½ to 14½; Tankerville, 5½ to 9; Tineroff, 20 to 22; Van, 37 to 39; West Wye Valley, 3 to 3½; West Ashington, 1½ to 1¾; West Basset, 4 to 5; West Wheel Chiverton, 18 to 19; West Tankerville, 1½ to 1¾; Wheel Crebhor, 2 to 2½; Wheel Grenville, 1 to 1½; Almada and Tinto, ¾ to ¾; Argentine, 6 to 6½; Birdseye Creek, ¾ to ¾; Cape Copper, 38 to 40; Cedar Creek, 4*s*. to 6*s*; Chontales, ¾ to ¾; Colorado Terrible Lode, ¾ to 1¾; Condes de Chilli, 5 to 5½; Don Pedro, ¾ to ¾; Eberhart and Aurora, 8½ to 9; Emma, ¾ to ¾; Eschweiler, 1½ to 2½; L. X. L., ¾ to ¾; Flagstaff, 1 to 1½; Frontino and Bolivia, 1½ to 1¾; Javal, 1½ to 1¾; Maraca, 4½ to 4¾; Malpaso, ¾ to ¾; Malabar, ¾ to ¾; New Pacific, ¾ to ¾; New Quebrada, 3½ to 3¾; Pestarena, ¾ to ¾; Pluma Grande, 2 to 2½; Rica, ¾ to ¾; Richmond Consolidated, 8½ to 9½; St. John del Rey, 330 to 340; San Pedro, ¾ to 1½; Sierra Buttes, 1½ to 1¾; South Aurora, ¾ to ¾; Sweetland Creek, ¾ to ¾; Tecoma, ¾ to ¾; United Mexican, 2½ to 2¾; Blue Tent, 3 to 3½; Oregon (pref.), 4 to 4½.

COLLIERIES.—The Iron and Coal Trades do not show any further advance since last week; but, on the whole, the improvement there recorded is tolerably well maintained. The prices of iron are rising, and while nearly all the works participate in the increase of orders obtained, many are employed full time and doing well. As the coal trade generally advances hand in hand with the iron trade, the position of the former may also be said to be improved, and this, no doubt, accounts for the larger amount of business lately done in colliery shares. Chapel House, Altam, Newport Abercrom, and New Sharlston have been most largely dealt in, and though we are unable to record any advance in prices, the shares are firm at quotations. Newport Abercrom close at 4½ to 5; the works are progressing satisfactorily. We understand that the whole of the debentures authorised to be issued have been taken up. Chapel House close firm at 3 to 3½; the meeting will be held on the 2nd inst. at Liverpool, when the directors hope that all shareholders will endeavour to be present. They take great pride in their new works, which are of great size, and they believe that were the shareholders to visit the colliery none would leave it with any other feeling than that of self-congratulation upon being partner in so fine and profitable a concern. The amount of coal raised since the last meeting is 136,000 tons, which has realised an average profit of about 2*s*. 1½*d*. per ton, a rate which, we believe, will be found to be unsurpassed by any other colliery during the same period. The new 16-ft. pit is now down 355 yards, and will very soon be completed, after which the daily output will be at once increased. The New Bilson Crump Meadow, Foxes Bridge, and Central Colliery Company has been registered with a capital of 200,000*l*. in 100 shares, to take over from the present companies the Bilson and Crump Meadow, and other collieries named, and working the whole under one management. This company will possess as a whole the largest property in the Forest of Dean, and will no doubt be attended by the same success which has characterised the collieries as worked separately hitherto. Bilson and Crump Meadow shares are, however, still quoted apart from the rest at 7½ to 8. Cardiff and Swansea shares close at 1½ to 1¾; West-Moyn (pref.) shares have been dealt in. Cakemoors close at 2½ to 2¾; New Sharlston at 4 to 4½, while Thorp's Gawler close at 2½ to 2¾, the first issue of shares still hanging on hand. Altamis close at 5 to 5½, and Lily Halls at 9 to 9½.

The DEVONPORT AND TIVERTON BREWERY COMPANY has been formed, with a capital of 60,000*l*. in shares of 5*l*. each, to purchase the New Passage Brewery at Devonport, and the Old Brewery at Tiverton; the former is 1½ acres in extent, has 14 public-houses, of which two are freehold; and the latter covers an acre. The annual brewing at the two works is about 378,000 gallons, and the profit is estimated to be sufficient to pay over 7 per cent. on the entire capital, which it is considered can be increased by extension to 14 per cent. The managers have had great experience at Messrs. Allsopp's and the Mortlake Brewery. The prospectus will be found in another column.

The BARLEY BROOK COAL AND CANNEL COMPANY, with a capital of 20,000*l*. in shares of 5*l*. each, has been formed to purchase and work the colliery of the same name (late W. J. Darbyshire and Son) at Wigan, 112 acres in extent, and immediately adjoining the collieries of Messrs. Ryland and Sons. The purchase includes the whole of the machinery, working plant, and appliances, valued at 6,000*l*. The colliery is favourably situated within 500 yards of the Wigan station of the Yorkshire and Lancashire Railway, with which it is connected by siding and tramway from the pit bank, and also connected with the Leeds and Liverpool Canal by a tramway and wharf. Small additional winding plant will enable the colliery to yield upwards of 100 tons per week. The cost of getting the coal free in the wagons does not exceed 1*s*. per ton, and the present selling price in the district is 8*s*. Cardiff and Swansea shares close at 1½ to 1¾. It is expected that the annual dividend will be at least 20 per cent. The mines are described as peculiarly free from water, also from gas, naked lights only being used. The property is estimated to contain 1,221,560 tons of coal, the whole of which can be worked from the present shafts. At 100 tons per week this would represent a supply for a quarter of a century. Contracts for lengthened periods have been entered into at remunerative prices. The directors have given notice that the list of applications for shares will close on Thursday next. The prospectus will be found in another column.

A "SKETCH OF MINING IN 1876."—At the end of the year, or early in January next, we hope to have the pleasure of publishing in the *Mining Journal* a Review of the Past Year, and of the state of mining generally, by J. Y. Watson, F.G.S., author of the "Compendium of British Mining" (published in 1843), "Gleanings Among Mines and Miners," "Records of Ancient Mining," &c. For 19 years in succession, in times gone by, the "Annual Review of the Progress of Mining in England," with statistical returns of all the principal mines, formed one of the features of the *Journal* at the end of each year; but the enormous amount of labour and anxiety which the work entailed compelled Mr. Watson to give up the annual task, the resumption of which, even in the lesser form of a slight sketch, will, we trust, in the present state of the mining interest, prove acceptable to our readers.

TANKERVILLE LEAD MINE, as may be seen by the manager's report this week, has much improved in the bottom levels. There are some points in operation at this mine which may ere long result in important discoveries of ore.

CWM DWYFOR MINES.—In another column will be found a report of the proceedings at the meeting held yesterday for the transfer of this property to a new company. The shareholders in the present company are, under the arrangement proposed, offered considerable benefit over outside applicants for shares, and it would clearly seem to be to their interest to support the new company.

WENSLEYDALE.—The West Burton lead mine has been sold to Mr. John Cain, for Mr. H. Pease, Darlington. There is every prospect of it becoming one of the best mines in the district. It will have been standing something like nine years, on account of some difficulty in getting the lease renewed, but this difficulty has been got over by a new company, who have sold the mine to Mr. Cain.

Working operations have been commenced, and in a very short time it is expected that a very large number of hands will be employed, which will prove to be of great benefit to this part of the country.

TAN-Y-BWLCH (Lead and Copper).—The reports from this mine are most favourable, the anticipations as to the success of the 90 having been fully realised. Besides proving itself so satisfactorily for lead, the copper is turning out well, and is free from sulphur.

THE EMMA MINE.—A telegram from New York (Dec. 14) says that the action brought by the Emma Mining Company against Mr. Park and others came on for trial yesterday in the United States Court, in this city.

The Master of the Rolls has appointed Mr. Alfred A. Broad (Broads, Paterson, and May, accountants, 35, Walbrook) official liquidator of the New Town Manure Company (Limited).

EXPORT OF STEAM-ENGINES.—The value of the steam-engines exported from the United Kingdom in November was 162,702*l*. as compared with 209,773*l*. in November, 1875, and 282,408*l*. in November, 1874; and in the eleven months ending Nov. 30 this year 1,817,904*l*. as compared with 2,455,695*l*. in November, 1875, and 2,975,114*l*. in November, 1874. In these latter totals the steam-engines exported to Russia figured for 140,893*l*. 321,692*l*. and 327,654*l*. respectively; those exported to Italy for 147,036*l*. 165,398*l*. and 182,126*l*. respectively; those exported to British India for 235,296*l*. 405,077*l*. and 325,696*l*. respectively; and those exported to Australia for 180,810*l*. 216,998*l*. and 265,249*l*. respectively. Our exports of steam-engines has decreased this year to Germany, but they have increased to France, Spain, Egypt, and Brazil.

LEAD ORES.				
Date.	Mines.	Tons.	Price per ton.	Purchasers.
Nov. 13	Central Foxdale	20	£16 0 0	Adam Eytton.
	—Great East Foxdale	25	15 0 0	ditto
Dec. 11	Caldbeck Fells	5½	15 10 0	Burby Port Smelting Co.
	—ditto	5½	9 14 0	Nevill, Druce, and Co.
	West Chiverton	50	18 15 6	South Wales Smelt. Co.
	—ditto	50	10 2 6	ditto
12	Frank Mills	55	11 5 0	Burby Port Smelting Co.
13	Great Dyffile	60	15 17 6	ditto
	—New Chiverton	7	12 6 0	Trefry's Estate.
	—ditto	12	6 11 6	ditto
14	North Hendre	50	15 12 6	Walker, Parker, and Co.
	—Pellase Patrick	25	15 8 6	Walker, Parker, and Co.
	Deep Level	5½	15 14 6	Walker, Parker, and Co.
	Rhyd Alun	8	15 3 6	Adam Eytton.
	Hazel Grove	8	15 15 6	Walker, Parker, and Co.
	—Van	350	15 2 6	ditto
	—ditto	100	8 6 6	ditto
	—ditto	50	16 2 6	Burby Port Smelt. Co.
	—ditto	25	16 2 6	Weston, Son, and Co.
	—ditto	25	16 2 6	South Wales Smelt. Co.
	—ditto	10	16 2 6	ditto
15	West Tankerville	35	15 18 6	Walker, Parker, and Co.
	—West Craven Moor	16	21 0 0	ditto

Mr. G. G. Blackwell, of Liverpool, sold from the Caradagh Mines, Dardanelles, 23 tons of lead, at 10*l*. 10*s*. per ton, and 2 cwt. tough lead, at 10*l*. per ton, to the St. Helens Lead Smelting Company.

BLENDE.				
Date.	Mines.	Tons.	Price per ton.	Purchasers.
Dec. 2	Cwmbyr	100	£4 15 0	Villiers Smelting Co.
14	Van	100	4 4 6	Swansea Vale Smelting Co.
	—ditto	100	4 0 6	Vivian and Son.

WEST CHIVERTON.—The sale of Blende on Dec. 4 realised £500.

BLACK TIN.				
Date.	Mines.	Tons c. q. lb.	Price per ton.	Amount.
Nov. 30	West Godolphin	11 4 0 22	£45 0 0	£515 13 0—Bolitho.
Dec. 2	—ditto	11 11 3 23	44 2 6	511 15 0—ditto

ASSAYS AND ANALYSES

WITH THE UTMOST DISPATCH, AND ON VERY MODERATE TERMS.

Samples may be sent by Post in bags, which will be supplied free upon application.

Address, MESSRS. WILKES BROTHERS, LABORATORY DEPARTMENT, 15, TRINITY SQUARE, TOWER HILL, LONDON, E.C.

RAILWAYS, AND BRITISH LEAD MINES.

NOW READY—FIFTH EDITION, price 1*s*. 6*d*.

BRITISH LEAD MINES, with MAPS, and a NEW

PREFACE: Containing an analysis of Railway and Lead Mining Shares and Dividends.

By J. H. MURCHISON, F.R.G.S.
London: At the Author's Office, 5, Austin Friars, E.C.

"Contains a good deal of information that may be useful at present. Mr. Murchison's theory is briefly that on the average British Lead Mines have less of the lottery element in them than any others, and the figures he gives seem to support that view; at all events, those interested in this industry will find his facts and observations worth reading."—*Times*.

"Calculated to be a great benefit to investors."—*Mining Journal*.
"We have great pleasure in recommending his treatise."—*Morning Post*.
"We invite capitalists to look into this means of investment."—*Money Market Review*.

TO MINING ENGINEERS.

WANTED, AN ACTIVE CO-OPERATOR, with £5000, to be secured by Mortgage on COAL PROPERTY of immense value. Interest 6 per cent.; bonus £5000; and good situation abroad.
Address, V. ELLIS, Post Office, Geneva.

WANTED, A RE-ENGAGEMENT AS MANAGER by a Practical Mine Agent, of six years home and fifteen years Foreign and Colonial experience in GOLD, SILVER, TIN, LEAD, COPPER, IRON, and PHOSPHATES OF LIME. Inspections of Mining Properties undertaken, and Estimates carefully made. A position foreign preferred. Speaks Spanish. First-class references.
Address, in first instance, "Metal," MINING JOURNAL Office, 26, Fleet-street, London, E.C.

WANTED, A SITUATION AS ASSISTANT in a MINING ENGINEER'S OFFICE, or ASSISTANT MANAGER of large MINES and WORKS—the Colonies preferred. The Advertiser is an Associate of the Royal School of Mines, and has had experience in Assaying, Underground Surveying, and the execution of Mining Plans. Speaks French, German, and Spanish. First-class testimonials can be given from former employers.
Address, "M. E.," Morley's Library, Forest Hill, S.E.

TO MINING COMPANIES.

WANTED.—The Advertiser, a PRACTICAL MINER of eighteen years experience at home and abroad, will shortly be discharged, and desires a SITUATION as MINE AGENT, which position he has filled for the past seven years. Is a thoroughly practical Miner, Dialler, Mapper, Assayer, and Analyser, and understands Mining Correspondence and Accounts. Unexceptionable references.
Address, in first instance, "Captain," MINING JOURNAL Office, 26, Fleet-street, London, E.C.

WANTED, SHARES in ALMADA, COLORADO TERRIBLE, FLAGSTAFF, JAVALI (preference and ordinary), NANT-Y-GLO AND BLAINA (preference), OLD TREBURGETT, PARYS, PESTARENA, FLYN-LIMON, TECOMA, and WEST GOGINAN MINES.
State number and price for cash to "Mr. B.," MINING JOURNAL Office, 26, Fleet-street, London, E.C.

PARTNER WANTED, in a PROFITABLE METALLURGICAL BUSINESS. Capital required, £5000.
Address, "Metal," MINING JOURNAL Office, 26, Fleet-street, London, E.C.

TO MINING AND OTHER COMPANIES.

AGENTMAN is open to an APPOINTMENT as MANAGER, SECRETARY, or ACCOUNTANT, at home or abroad. Has had thirteen years' experience on railways and mining works in this country and Canada.
Address, "A. Z.," 432, Wandsworth-road, S.W.

TO BE SOLD, FOR £2000, a RICH MINE of SULPHATE OF BARYTES. The seller will, at the option of the buyer, leave £1000 in the concern, and take half the profits. The mine can produce at least £1000 profit annually.
Apply, "A. L. M.," 57, Princes-street, Leicester-square.

BATTERY, DEVON.

SLATE QUARRY TO BE LET.—Large sizes, and of very first-rate quality. Good roads. Railway siding, 1½ miles. Unusual advantages for tipping rubble, &c.
For further particulars, apply to Messrs. WHITE and SON, Wrangaton, near Ivybridge; or Messrs. KITSON, Solicitors, Torquay.

FOR SALE, the WHOLE or PART:—

100 VAN CONSOLS, at £2 0 0	100 PARYS MOUNTAIN, at £10 11 0
50 WEST GODOLPHIN, at 2 10 0	40 GLENROY, at 1 10 0
20 MINERA, at 20 0 0	50 WHEEL GRENVILLE, at 1 5 0
20 LEAD HILLS, at 6 0 0	

Address, H. WILKINS, 3, Hayburn Villas, Tottenham, London, N.E.

ZINC ORES.

ARMAND FALLIZE.

INGENIEUR-CIVIL, A LIEGE (BELGIUM).

BUYER OF

- 1.—CARBONATED AND OXYDED ZINC ORES /CALAMINE, &c.
- 2.—ZINC AND LEAD ORES MIXED TOGETHER, BUT DRESSABLE KINDS ONLY

CAPPER PASS AND SON, BRISTOL,

PURCHASERS OF

LEAD ASHES, LEAD SLAGS, SULPHATE OF LEAD, HARD LEAD, BRASS SLAGS AND ASHES, COPPER REGULUS, MATTE, SCORIA, TIN ASHES, TERNE ASHES, &c., and MIXED ORES or REFUSE, containing LEAD, COPPER, TIN, or ANTIMONY.

THE RIPLEY SPELTER COMPANY

RIPLEY, DERBYSHIRE,

ARE PURCHASERS OF

BLENDE AND CALAMINE ORES, HARD SPELTER, SPELTER AND ZINC ASHES, FLUX, KIMMINGS, and other ZINC RESIDUES. Also COPPER SLAG, BRASS ASHES, TIN and TERNE ASHES, and SCRUFF and other METALLIC RESIDUES.

HENRY SEWELL, M.E., F.R.G.S.

LONDON ADDRESS.—10, UPPER WESTBOURNE TERRACE.

IN PERU.—POST OFFICE, LIMA.

IN CHILI.—BRITISH CONSULATE, VALPARAISO.

Mr. H. SEWELL, M.E., F.R.G.S., will reach London, *via* New York, in two months time, bringing with him particulars of some rich Mining Properties. He has contracted in Chili for Copper, Silver, Gold, Cinnabar, Nickel, and Silver-lead Properties.
About December any cablegram will reach him addressed Lima, Peru.

WILLIAM CRAWFORD,

COAL FACTOR AND GENERAL AGENT,

CONSTANTINOPLE,

IS OPEN TO ACCEPT THE AGENCY OF A GOOD FIRM.

SAN JUAN, COLORADO, U.S.A.

E. STEINBACH, C.E.

METALLURGIST AND ASSAYER,

WILL VISIT, INSPECT, AND REPORT UPON MINES.

DEL NORTE, RIO GRANDE COUNTY, COLO.

T. R. GLOVER,

MINERAL DEALER AND BROKER AND GENERAL FINANCIAL AGENT,

2, EXCHANGE STREET EAST,

LIVERPOOL.

Mr. E. JACKSON,

Associate of the Royal School of Mines,

ANALYST AND ASSAYER.

Assays or Complete Analyses made of Copper, Silver, Lead, Zinc, Tin, and other Ores.

106, QUEEN VICTORIA STREET, LONDON, E.C.

"BALLOT-TONTINE."

SECOND EDITION, THIS DAY.

BALLOT-TONTINE—

AN IMPROVED SYSTEM OF COMPANY MANAGEMENT.

Price One Shilling. Free by post.

To be had on application to Messrs. SKYMOOR and SMITH, No. 171, Queen Victoria-street, London, E.C.

ANALYSES made of COAL, COKE, CLAY, ORES,

METALS, &c., by

PERCY C. GILCHRIST, Assoc. Royal School of Mines, F.C.S.

LABORATORY:

BLAENAVON IRONWORKS, PONTYPOOL, MON.

Charges moderate—Accuracy guaranteed.

FOR SALE.—16 horse power DOUBLE CYLINDER SEMI-

PORTABLE ENGINE, with 18-horse power BOILER,

by ROBEY and Co., nearly new, in splendid condition.

Apply, WARSON and HILL, Engineers, Nottingham.

DELABOLE SLATE QUARRY LANDS AND SILVER-LEAD

MINES, TO BE LEASED, on easy terms. First-class investments.

Apply to Mr. W. D. KING, Solicitor, Camelford, Cornwall.

FOR SALE, OR PART.—20 Almada, 5*s*. 9½; 100 Pestarena,

4*s*. 3*d*.; 25 Pestarena (10 per cent. preference), 23*s*. 6*d*.; 100 Sweetland

Creek, 5*s*. 9½; 20 Glenroy, 32*s*. 6*d*.; 25 North Lacey. Each net.

Address, "M. E.," Mr. Barber, 13, Royal Exchange, London, E.C.

FOR SALE, BY PRIVATE CONTRACT, a 60-inch cylinder

CORNISH PUMPING ENGINE, 9 ft. stroke, equal beam, with first piece

of main rod attached, with TWO BOILERS of 11 tons each, equal to new.

Further particulars will be supplied on application to Mr. W. GATH, Accountant,

2, Devonshire-street, Carlisle.

THE LONDON AND CONTINENTAL EXCHANGE.

25, FINSBURY PLACE, E.C., send, post free, particulars and plans of the

COMING INVESTMENT, which will make fortunes for many shareholders.

Apply before all shares are sold.

Share business conducted on usual terms. Advice gratis.

MESSRS. JOSEPH J. REYNOLDS AND CO.,

STOCK AND SHARE DEALERS, 23, FINSBURY PLACE.

The great fall in Foreign Securities has turned the attention of the capitalist to

Home Industries for Investment; and, at the request of their clients, Messrs.

REYNOLDS and Co., have, after much consideration and practical examination,

**THE
NATIONAL
BOILER INSURANCE COMPANY (LIMITED).**
22, SAINT ANN'S SQUARE, MANCHESTER,
OFFERS THE FOLLOWING ADVANTAGES TO BOILER OWNERS.

REDUCTION OF RISK OF ACCIDENT OR EXPLOSION, by efficient, but not arbitrary, inspection. Written reports sent to the owners thereon.
RELIABLE ADVICE given by the Chief Engineer, Mr. H. HILLER, on all matters relating to the Use of Steam.

IF EXPLOSION OCCURS,
Damage to Boilers, Buildings, &c., made good. Furnace-tubes injured through deficiency of water restored to working order.

The COMPANY are SOLE PROPRIETORS OF
SMITH'S PATENT DOUBLE CONE FUSIBLE PLUG.
This is a most valuable safeguard. It has prevented injury in hundreds of cases.

Prospectuses, &c., to be had on application as above.

Notices to Correspondents.

* Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be read on receipt; it then forms an accumulating useful work of reference.

Will any of the correspondents of the Journal kindly inform me, through its columns, whether it is necessary that a metalliferous mine agent should receive a Certificate of Competency to be eligible for his office? And, if so, what manner of examination he would have to undergo, and the best plan for a practical miner to adopt so as to procure one?

MINING JOURNAL.—Any reader having duplicates of the Journal of Dec. 18, 1875, or of the following dates in 1876 will oblige by returning them at 6d. per copy, or in exchange for current numbers:—Jan. 29, Feb. 12, Feb. 19, April 1, May 20, July 1.

The cost of the Suez Canal, including harbours, is stated at about 20,000,000.

Received.—"J. P. S." (Valparaiso): The newspaper referred to has not come to hand.—"R. W." (Brooklyn): We shall be glad to have the particulars.—"R. P." (Sheffield): "J. A. C."—"N. B." (London):—"A. R." on the Barometer as an Indicator of Gas in Collieries, shall appear next week.

* LECTURES FOR PRACTICAL MINERS.—Immediately on the completion of the reports of Prof. SMYTH'S Lectures (of which only three or four remain unpublished), a series of careful reports, specially prepared for the *Mining Journal*, from notes taken by Mr. J. CLARK JEFFERSON, A.R.S.M., Whitworth Scholar, and formerly Student of the Clausthal Mining School, of the Lectures there delivered, will be given. The series are very complete, and will be highly valuable for the sound technical matter which they contain.

THE MINING JOURNAL,

Railway and Commercial Gazette.

LONDON, DECEMBER 16, 1876.

COAL AND IRON MASTERS, AND THEIR OPERATIVES.

The unprofitable terms upon which business is now being generally done in the coal and iron industries is notorious. The instances are altogether exceptional and rare as to which coal mining and iron making is now being conducted upon paying terms. No better guide to what is really happening can be obtained than the published lists of the prices at which joint-stock property of this class is to be had in the market. Our regular correspondents frequently draw attention in their reports to this phase of things in relation to their respective districts. The greatly reduced value of such property is conspicuous enough in the North of England; it is shown as to Staffordshire in our report from that district, but the fact is more strikingly brought out in relation to South Wales. For instance, Cardiff and Swansea Colliery shares (10s.), 9d. paid, are quoted 1s. 1d. to 1s. 2d.; Crown Preserved Coal, 5s. paid-up, 2s. 3d. to 3s.; Ebbw Vale 52s. shares, 20s. paid, 11s. to 12s.; Great Western Colliery (20s.), 18s. paid, 9s. to 10s.; Llynvi Tondy and Ogmore Coal and Iron, 50s. paid-up, 17s. to 18s.; Nant-y-Glo and Blaenau Ironworks (preference), 100s. paid-up, 19s. to 20s.; Newport Abercarn Colliery, 10s. paid-up, 4s. to 4s. 1/2; Rhondda-Merthyr Colliery, 50s. paid-up, 15s. to 20s.; ditto, B (25s.), 20s. paid, 7s. to 10s.; Rhyannoy Iron, 50s. paid-up, 24s. to 25s.; ditto, new, 15s. paid-up, 7s. to 7s. 1/2; South Wales Colliery (25s.), 20s. paid, 8s. to 10s.; Tredegar Iron and Coal, A (50s.), 20s. paid, 16s. to 17s.; ditto, B, 25s. paid-up, 23s. to 23s. 1/2. Everyone who knows anything of the Southern Principality is aware that this list, if it were necessary, could be enlarged; only, however, to afford a further illustration of the same unprofitable condition of things.

How far as to South Wales unhappy disunion not a great while ago between masters and men may have contributed to this state of things, or, as to the whole of the districts, to what extent the unreasonable requirements of operatives as to wages and time may have contributed to the prevailing depression it is not requisite that we should here express an opinion. Yet events of earlier and later date in connection with the intercourse between employer and employed in the coal and iron industries certainly point to the wisdom of abstention from any course of procedure calculated to make bad worse. Speaking generally, the disposition to act reasonably is not altogether without indication wherever these industries are in this country being prosecuted. In South Wales there are indications that a spirit of mutual conciliation will be requisite in order to fix a basis of agreement for the future. That such a basis should be needed would seem to be clearly proved by the figures we have already quoted, but it is still more apparent when we point out that the price of coal in South Wales is lower at this moment than it was ever known at Merthyr Tydvil. Samples are being sold by the truck at 6s. per ton, and the very best at 7s. 6d. even the well-known Pen-y-darran lower 4-ft. coal, which is free burning, and is of strong heat, is being offered at 6s. in trucks. It should not under these circumstances be surprising that at leading collieries in South Wales notices should be posted up inviting the workmen to appoint a committee to decide, with a committee of the masters, on a new code of contract rules. What the masters contemplate we do not profess to know. Still the men can hardly be supposed to go far wrong in concluding that the new contracts desired have some bearing upon the state of affairs here indicated.

That, however, the masters propose to effect a change in prevailing contracts after mutual discussion with representative workmen speaks forcibly in favour of their desire to maintain agreeable intercourse with their operatives, taking them into their confidence as to the most judicious course to be pursued in behalf of their interests. Nor, to speak fairly of the men, does it at present seem that they on their part are indisposed to look any difficulty fairly in the face. It must be assumed that they desire with their masters to have no more wasteful contention upon matters capable of adjustment across a table. Important sectional and representative meetings are now being held in South Wales, and the delegate meeting at Merthyr, on Monday, took steps to communicate with the masters with a view of ascertaining what sort of committee they require—whether they want other persons than those who at present represent the workmen on the Conciliation Board. All this is, of course, preliminary, but so far it is satisfactory. The experience of the recent past, and of a much longer period in certain of the other districts, of the results of adjustments of differences in this fashion are such as should encourage the belief that this important matter now happening in South Wales will be settled without resort to anything so disastrous as a strike or a lock-out. Delicate matters have for years past been adjusted in connection with the iron and coal trades of the North of England without any cessation of employment by the colliers, and though a subject of considerable consequence is still an open question there, yet we do not despair of even that being ultimately set right without any open breach in the cordiality with which both sides are there working. What is

true of the coal trade of the North of England is scarcely less true in this connection in respect of the iron trade of South Wales. And the colliers and ironworkers of Staffordshire were never so well off as they have been during the existence there of the Boards of Conciliation. From the time that these were started there has been no strike or lock-out calling for mention, and regularity of work at a fair market price for his labour is of much more importance to an operative than occasional spurts of high wages, won often at an immense sacrifice.

It is greatly to be regretted that certain skilled operatives whose interests have an intimate relation to the coal and iron trades should have been displaying a front which cannot but permanently injure both themselves and their employers. We are not amongst those who attach too much importance to the rivalry of foreigners; nevertheless, this is not the day when such rivalry can be lightly disregarded. The operative railway spring makers in Sheffield had resisted a scale of wages which would leave them very high terms of remuneration. The change upon the former scale is imperative, since the selling prices have been greatly reduced both by home and foreign competition. This the men know well enough, yet they refuse the revised terms, excellent though they are, and Belgian manufacturers are doing a good stroke of business on terms which may be inferred from the prices at which they are supplying another article largely made in Sheffield, where Belgian tyres are delivered at fully 25s. below the price of those of the Sheffield makers. Not only is it desirable on business grounds that workmen should cordially unite with their employers in arranging conditions and terms of service, but it is likewise to be desired upon, perhaps, higher grounds. There is hardly ever an open difference between employers and employed leading to strikes and lock-outs without resort to acts of violence, which contribute not to the advancement but to the demoralisation of the operatives. Only so recently as Monday night last a Sheffield spring-fitter, who had been out of work twelve weeks, but had that day resumed on employers' terms, was returning home when he was attacked by three fellow-operatives, and was so kicked and otherwise maltreated that he was left unrecognisable, and when this was written was supposed to be dying. Violence of this kind will be next to impossible under such a state of things as the coalmasters of South Wales, like those of the North of England and South Staffordshire, are desirous of perpetuating. On every ground, therefore, it is desirable that by cordially agreeing with their masters the colliers of South Wales should do their best to stimulate the improvement in trade which is beginning to appear, and which will by-and-by ripen into an activity that will permit of profit where now there is loss, and, consequently, an advance in the current scales of wages.

RAILWAY TRAFFIC.

The general report, published a few days since by Capt. TYLER, of the traffic in passengers and goods, the net profits and the working expenses of the various railways in the United Kingdom for the year 1875, contains much valuable and interesting information, and affords reliable data of the enormous traffic which is done in what has been termed the "tight little island of England." As a rule, figures connected with large undertakings are far too carelessly regarded, and not sufficiently emphasised to convey to the mind adequate ideas of the subject-matter under consideration. For instance, how few persons recognise the fact that our "iron roads" have cost no less than 630,223,494l. in construction—within about 100,000,000l. of the National Debt of the kingdom—and that the cost per mile is nearly 33,000l. There are in the United Kingdom 16,658 miles of railways, of which 8896 were two or more lines, whilst 7790 were only single lines. Of course, the principal companies possessing the main arteries hold an enormous proportion of these lines and share capital. For instance, the Midland Company has an authorised capital of no less than 63,016,033l., with a constructed mileage of 1363 and an authorised mileage of 1534 miles. The Great Western Company has a capital of 55,502,685l., and a mileage of 1093 miles, whilst it is authorised to construct 40 miles more, and leases and works 1005 more miles, so that altogether it has under its direct or indirect control no less than 2119 miles.

Another item of significant importance is the fact that during the past year trains ran over no less than 209,528,186 miles. There were no less than 507,572,491 passengers carried, and 200,061,651 tons of minerals and goods, besides the carriage of live stock. The receipts showed an increase of 221,165l. upon first class passengers, and of 639,224l. in third-class passengers, but a decrease of 256,589l. in second-class passengers, clearly indicating that probably the other great railway companies will find it their policy to adopt the example set by the Midland Company, and abolish the second-class passenger traffic entirely—a step which it is only right to say is advocated by some of the best railway authorities in the kingdom. The increase in the receipts from minerals and goods amounted to no less than 1,262,189l., showing that, on the whole, the great staple industries of the kingdom were in a fairly prosperous condition—a state which we fear Capt. TYLER will not have to reckon upon when compiling his returns for the present year. The total sum received by the various companies during the past year was 58,982,753l.; but no less than 55 per cent., or 32,198,116l., was expended in the working and maintenance of the lines, leaving 26,784,557l. disposable amongst the shareholders. The working expenses were unquestionably heavy, and is partly accounted for by the enhanced price of coal. This certainly will not be the case during the present year, for the prices of coal and coke have so materially fallen, as compared with those which obtained last corresponding period last year, that several of the great companies calculate upon a saving in this one item alone of some 20,000l. in the half-year. During the past 17 years the gross receipts of the railways have more than doubled, being in the year 1858 only 23,958,749l., whilst last year, as before stated, they were 58,982,753l.

Regarded as a means of investment, the report of Capt. TYLER proves that, upon the whole, railways are fairly good. A few favourably situated lines, and these principally running through large mineral basins and manufacturing centres, pay most handsome dividends, ranging from 8 to 10 per cent., whilst other lines are altogether unproductive, and worked at a positive loss. The average rate of dividend on ordinary capital, however, for the past year was 4.72 per cent., and on the total capital 4.54 per cent. No less than 47,058,915l. of capital received no interest or dividend, owing probably to the fact that much of this expenditure has been made upon connecting links, and that the traffic has not been as yet developed—43 dividend upon the ordinary expended capital, and 4s. upon the total capital (including the 47,058,915l. of capital which received no dividend), cannot be regarded as bad, taking into consideration exceptional circumstances which materially swelled working expenses, and, of course, proportionately diminished the capital left for disposal as dividends. The hope of the shareholders for increased dividends for the immediate future lies in diminished working expenses rather than any great increase of traffic, either of passenger or goods and mineral.

True, there are indications of a little revival of some of the staple trades of the country, which will affect to a greater or lesser extent the receipts of the various lines of railway; but having regard to the circumstances which govern dividends, we may expect that they will be about the same for the ensuing half year as have prevailed for the past year or two. Whilst railways, as a whole, prove safe and moderately profitable investments, there can be no doubt that those lines which have large mineral and goods traffic are by far the best dividend-paying lines. The policy of some managers of railway appears to be to ignore to a very great extent the claims of the mineral and goods traffic. The goods trains are shunted off, and the traffic delayed to an unreasonable extent, whilst the tariff charged upon some lines for the conveyance of minerals is almost prohibitory, driving manufacturers and merchants to adopt steamers and coasting vessels when speed is not absolutely necessary. This is altogether wrong. The official returns of Capt. TYLER prove that far more than one-half of the increased trade of the year 1875 over that of 1874 arose upon the mineral and goods traffic, so that it has special claims for consideration upon directors and officials. It is by far the best paying traffic, and the true policy of railway managers, even in their own interests, is to nurse its growth and do all they can to promote its

development. Probably the great lines will shortly see that this can be the most effectually done by laying down another line of rails, and keeping passenger and goods traffic altogether separate and distinct.

IRON MAKING IN SOUTH WALES.

The directors of the Rhymney Iron Company (Limited) have just issued a circular which affords striking proofs of the present deplorable condition of the iron trade—and especially the railway iron trade—of South Wales. Since March 31, 1876, the market price of railway iron has continued to recede until it has touched almost the lowest rate on record—5l. to 5l. 5s. per ton on board ship in the Welsh ports. This extremely low price of rails has occurred contemporaneously with an advance in the price of labour and materials of various kinds, so that the problem which a South Wales iron company has now to endeavour to solve would appear to be not how much profit it can manage to realise, but how much loss it can contrive to avoid. No reduction in colliers' wages has taken place in South Wales during the last seven months, but a slight reduction is now being carried out in the remuneration of the company's ironworkers. The price of purchased or foreign ore has considerably lessened, but the fall has not been commensurate with the decline in the selling price of iron. Considerably increased supplies of iron ore have become available from Bilbao since the close of the unhappy Carlist conflict; but in consequence of the objectionable character of the port, freight has not been reduced to a reasonable rate, as compared with that from other ore supplying districts. The directors of the Rhymney Iron Company have, under the existing conditions of the enhanced cost of labour and materials, given their attention to the economy likely to be derived from an extended use of mechanical appliances, and they have just completed the adaptation of steam haulage to the underground workings of another of the company's largest collieries. The principal saving expected to be effected is in horse labour, but the importance of this will be readily appreciated when it is considered that the value of a horse is now double what it was six years since. For further economy in coal working screens have been erected at two of the company's collieries for the purpose of dispensing with the expensive practice of hand picking. Still after making effort to reduce the company's outgoings, the directors do not appear to look very hopefully upon the future, and they have suspended the working of some of the collieries, as they consider it prudent to leave the coal in the ground for the present rather than to sell it without profit.

It may be interesting to set out in a tabular form the profit and loss experiences of the Rhymney Iron Company for the 23 years ending with 1875 inclusive. They are as follows:—

Year.	Profit.	Loss.	Year.	Profit.	Loss.
1853	£47,872	—	1865	£32,006	—
1854	57,441	—	1866	39,136	—
1855	24,686	—	1867	13,641	—
1856	32,232	—	1868	13,710	—
1857	45,887	—	1869	41,880	—
1858	37,727	—	1870	64,802	—
1859	30,800	—	1871	45,457	—
1860	23,305	—	1872	61,683	—
1861	19,125	—	1873	57,990	—
1862	16,606	—	1874	61,009	—
1863	14,151	—	1875	—	£16,485
1864	37,177	—			

The tremendous revulsion in the iron trade of South Wales can receive no better or more forcible illustration than that which is afforded by these figures. Although even in past times the profits of the Rhymney Iron Company were subject to fluctuations, still a profit was always made up to 1874 inclusive. The profit of 1874 was large and encouraging, but in 1875 a most disastrous revulsion occurred, and all that the directors have since been able to do has been to keep the company's losses within comparatively moderate bounds, profit being for the time apparently quite out of the question. The profits of the Rhymney Iron Company have naturally reflected very closely the prices current for rails. In the five years ending with 1875 inclusive rails averaged 7l. 19s. per ton, and the company's profits averaged 6l. 12s. per cent. per annum upon its share capital. In the five years ending with 1862 inclusive rails averaged 5l. 10s. per ton, and the company's profits averaged 4l. 4s. per cent. per annum upon its share capital. In the five years ending with 1867 inclusive rails averaged 6l. 7s. per ton, and the company's profits averaged 4l. 5s. 6d. per cent. per annum upon its share capital.

OUR IRON AND COAL INDUSTRIES—THEIR TAXATION, PROGRESS, &c.

On the occasion of the annual dinner of the Leeds Association of Foremen Engineers and Draughtsmen, which took place on the 9th inst., there was a large and influential gathering of gentlemen connected with the coal and iron trades of the district, as well as several members of Parliament, when some interesting statements were made by several speakers as to the progress of trade, unfair taxation, and the saving of fuel in manufacturing and works using steam-power. The chair was occupied by Mr. Walker, of the well-known firm of Tannett, Walker, and Co., whose address embodied several important points relative to the state of trade, the necessity for greater economy in fuel for driving engines, and the existing position of masters and workmen. He considered that the Patent Laws required amending, and he hoped that in the ensuing session of Parliament a Bill would be introduced for the amendment and consolidation of the Factory and Workshops Acts. In making some pertinent remarks as to the business with which his firm was connected Mr. Walker said they had heard a great deal about Belgium and America being likely to run this country a very tight race in the manufacture of iron and steel, but he was thoroughly convinced that so far as the manufacture of pig-iron was concerned it would be very difficult for any country to beat us. He considered there was still a considerable improvement to be made in the manufacture of wrought-iron. There was still too much coal used and too much labour required. But we could make pig-iron and bar-iron cheaper at the present time than any other country, and if the tariff were removed we could send these descriptions of iron to America itself. It was the duty of practical engineers to point out how they could effect a saving of coal in the raising of steam. He was satisfied that nearly of the whole of the steam-engines in Great Britain might be taken out and replaced by others, the saving of coal by which would pay 10 per cent. on the cost of the engines. The direction in which a saving of coal was to be effected was by means of a higher pressure, and that meant in the first place better boilers. It was with humility that he asserted that Leeds was not in the position it ought to occupy as a boiler-making town, so far as stationary boilers were concerned, and this was a subject that engineers ought to turn their attention to. The next thing was to have very much higher rates of expansion, and the best way to obtain that object was by compound or double compound engines. The saving would be enormous if they were to take a common engine worked at 35 lbs. pressure and work it at 70 lbs. Another direction in which a saving might be effected was by means of surface condensers. The speaker then referred to a subject which just now is occupying the attention of manufacturers and colliery owners—that of rating, or local taxation, and pointed out several anomalies and inconsistencies in the present system, referring to the mode in which steam-engines were rated to the poor. He pointed out that if two steam-engines exactly the same in pattern were put down, one in Leeds and the other in Holbeck (which adjoins Leeds), one would be rated at 22 horse-power and the other at 58 horse-power.

In making the rate the size of the cylinder simply was noted, and nothing else; but there might be two engines with the same size cylinders, and one might do ten times as much work as the other. In the rating of engines three elements ought to be considered—the pressure of the steam, the speed of the piston, and the rate of expansion. Such an improved mode of assessing engines as that suggested by Mr. Walker will be fully recognised, we feel sure, by all users of steam-power, for the present mode is faulty in the extreme, as is that also for rating collieries. With regard to the latter, the assessment committees in many places are chiefly composed of agriculturists, who, like many others, consider that the profit on coal is so great that the colliery owners ought to pay nearly

the whole of the rates. Nothing is allowed for redemption of capital, loss by wear and tear of machinery, and depreciation of the plant generally. There are certain peculiarities connected with mining property that ought to be taken into consideration when it is assessed. In the first place, there is no business or profession that is so subject to losses, or where the risks are greater, than coal mines. Houses, works, machinery, and crops can be assured against fire, but not so a colliery; so that when anything occurs by an explosion, or by water, involving serious loss, the mineowner has to stand to it. And instances have occurred, even of late years, where a colliery proprietor has lost as much as 100,000*l.* owing to a fire. This was the case at the Darfield Main Colliery, near Barnsley. At other places the cost of explosions have varied from 10,000*l.* to 50,000*l.*, and these losses, we need scarcely state, are never taken into consideration by those who rate our mines. But a still stronger point is to be found in the fact that in the course of time a colliery becomes entirely exhausted, when the outlay for sinking, making of roads and sidings, and most of the costly plant is entirely lost. On the other hand, the owners of land and buildings find their property increasing in value as time rolls on, and are able to sell it at any time. We, therefore, consider that there should be some special mode of rating both collieries and steam-engines, for the present system is one that is most unfair. Colliery owners, as a class, do not parade their grievances before the public as other bodies do, otherwise a change would have taken place long since by legislative enactment. But so serious has become the rating of some mines that it will become absolutely necessary to have a change, not to relieve colliery owners from all just burdens, but to treat them fairly, and the same as any other class of ratepayers. Again, rating of property of every description, including engines, should be uniform, and not capricious, as in the instance given by Mr. Walker. We hope, therefore, that those who naturally feel aggrieved at the present unfair way in which they are taxed will seek for and obtain that redress to which they are equitably entitled from the powers that can give it.

Returning to the gathering at Leeds, we find that opinions were agreed as to the iron trade being in a very depressed state in that district, more particularly the engineer, tool, and machine trades. In alluding to the short hours now worked, Mr. Walker said the men would not return to the long-hours system now they were better educated. The only remedy was to use better machinery and exert greater diligence, as they then could do as much work in seven hours as they do in ten. He believed that the markets of the world were practically overstocked, and they must make up their minds to compete with the foreigner by decreasing the cost of production. Mr. Barran, M.P., in referring to the state of trade, remarked that Leeds had the best of ironstone, and coal particularly well adapted for smelting, with the best tool and machine makers known, the town standing unrivalled for the production of crank axles and other ironwork. But he did not think they ought to be despondent—a sentiment which we feel assured will be generally echoed by those connected with the iron trade.

REDUCTION OF THE MEXICAN MINING TAX.—A new law has been made in Mexico which will do much for those engaged there in mining enterprise. It is remarked that the mines are rich, and labour is cheap, but investments in them have not usually been remunerative. The exorbitant cost of transportation, and the absence of facilities for making and repairing machinery, together with the risks incurred in sending treasure to the coast for shipment, would seem to have been sufficient obstacles, without the further imposition of a direct tax by Government. It is not difficult to understand why the Mexican mines have proved unfortunate ventures. Now that one of the main difficulties is about to be partially removed better prospects may be looked for. Under the new law the tax on gold will be reduced to \$4.62 per 100, and that on silver to \$4.41 per 100. This levy is now termed a "coinage duty," but is specifically applied to all forms of the precious metals, whether coined or uncoined. This is a substantial reduction from the previous existing rates, the export duty on silver having been 14 per cent. Had the export tariff been abolished altogether the benefit to all concerned, the Mexican Treasury included, would have been greater.

MINING IN NEW MEXICO.—We obtain the following statement of the product of gold and silver in New Mexico, for the year ending June 30, from the Executive Office, the same having been obtained through correspondence with bankers and others associated with mining interests by Governor Ritch, and forwarded by him in reply to a request for the same to the Treasury Department:—

County.	Gold.	Silver.	Total amount.
Grant	\$ 50,351.36	\$422,329.45	\$472,680.81
Colfax	215,500.00	...	215,500.00
Balance of Territory.	2,500.00	2,500.00	22,500.00
Totals	\$ 72,351.36	\$424,829.45	\$497,180.81

The Governor says that much care has been observed in obtaining the statement, and that he believes the amount approximately correct. Incidentally we may mention that \$20,000 of the silver yield of Grant county for the year was carried to Mexico. Magruder's copper works have yielded during the year 208,000 lbs. of copper. The yield of the precious metals in this Territory for 1874 was reported at \$500,000, thus showing a gain of \$208,180.78.

IRON IN BRAZIL.—A remarkable mass of native iron, found in the province of Santa-Catherina (Brazil), has been analysed by MM. E. Guizot and G. Ozorio de Almeida, and the results communicated to the Académie des Sciences of Paris. The mean of many analyses gave iron 64, and nickel 36, which corresponds very nearly with the formula Fe₂Ni. It was thought that this mass was meteoric, but it appears to be proved that it is of terrestrial origin.

SILVER.—Some doubt was cast upon a statement which appeared in the newspapers in the course of last month to the effect that silver to the amount of 200,000*l.* had been bought in this country for shipment to the United States. It appears, however, from the Board of Trade Returns that the export of silver to the States during November was as much as 375,000*l.* So important a movement of silver across the Atlantic from Europe is, of course, a most unusual, if not an unprecedented, circumstance, and it seems to prove that, for the present at least, the production of the Western States is not sufficient to provide silver enough for the American coinage operations. The total exports of silver from the United Kingdom were very large last month, amounting to 2,321,549*l.*, against 667,922*l.* in November, 1875, and 828,857*l.* in November, 1874. To India the shipments were 1,555,400*l.* The total imports amounted to 1,324,271*l.*, of which 692,108*l.* came from Germany and 168,458*l.* from France. The imports from the United States were only 181,953*l.*, against 310,165*l.* in the corresponding period of last year.

MINING IN INDIA.—We are informed that Mr. Calvert, F.G.S., C.E., &c., has been reinstated in his mines at Kulu, Punjab, which were stopped three years ago upon the excuse that it was impossible the mines could succeed on account of "his irascible temper." It, however, having been represented to the Lieut.-Governor of the Punjab when he made his charge that Mr. Calvert had been over 30 years in black countries (tropicals), and had for some years over 16,000 natives in his employ in Bengal, and had never in his life had a complaint made against him by any native or coloured man; the Hon. Henry Davies, Lieut.-Governor of the Punjab, promised to reinstate him in his property, which had cost him over 12,500*l.* if he would sign two documents promising not to bring any action at law against him for defamation of character, libel, &c. Since then the Governor-General has taken the matter in hand, by order of the Marquis of Salisbury, who stated he considered Mr. Calvert had been most unfairly treated, and Mr. Calvert has at last been reinstated in his property without any reference whatever to Sir Henry Davies, who is left to himself. Not a penny compensation, however, has been given for the loss accruing to this piece of despotic tyranny, now by the Indian papers too common in India. One would think the Government would be too glad to discover even lead for bullets in these times, to say nothing of gold, silver, copper, and tin. We un-

derstand the leases for 25 years are now for sale in consequence of the age and ill-health of the proprietor. The Governor-General visited Kulu last week, and Mr. Calvert's cottage at "Silver Hill" was placed at his disposal.

POWDER IN IRONSTONE MINES.—The necessity for doing away with the rule with respect to the use of gunpowder in ironstone mines is so apparent that we think the gentlemen who recently waited upon the Home Secretary were fully justified in adopting that course. But this shows the necessity there is for examining all Bills brought before Parliament in connection with mines, for there is certainly no reason whatever why powder should be taken down ironstone mines in cartridges, whilst there is the strongest possible reason why it should be used in that way in collieries. In mines where iron ore is worked we scarcely ever hear of any fire-damp being met with, and this is shown by the Inspectors' reports for last year, for of the 119 persons killed in connection with the operations in such mines (including those killed in slate quarries), not one life was lost by an explosion of fire-damp. At the same time it must not be overlooked that 12 persons were killed by explosions of gunpowder, but in most instances carelessness was the actual cause. Four of the deaths took place at a pit near Bradford, belonging to the Bowling Iron Company, owing to the powder being accidentally set fire to. This was the only fatality that took place in the ironstone mines in the West Riding of Yorkshire. We admit that stringent rules should be adopted for blasting in ironstone mines, but there is no ground whatever for limiting the use of powder as in collieries, where fire-damp is frequently met with, for there can be no danger where ordinary precautions are taken in bringing down ironstone by blasting. A larger quantity of powder is often required for getting stone than coal, so that the cartridge system is a hindrance to the workmen without any counterbalancing advantage gained. Accidents will take place in mines despite the most stringent regulations that can be adopted, so that even cartridges may be so used as to become a source of danger. But, properly handled, we cannot see why in ironstone mines powder should not be taken as heretofore, seeing that very few persons have been killed by it, and those by their own neglect as a rule. We, therefore, hope the Home Secretary will use the power he has, and allow gunpowder to be used as it was before the last Act came into operation.

REPORT FROM CORNWALL.

Dec. 14.—Everybody outside the charmed circle of the smelters appear to hold that the drop of last week in the tin standards was—as noted by us at the time—uncalled for and unjustifiable; however, it is done, and there is nothing for it but to submit with the best grace possible. There are those who believe that there will be a recovery during the present month, but December is about half through, Christmas tide nigh, and it is far more likely that we shall have to wait until the New Year.

Meetings of the china-clay labourers on strike are held daily at various points, but the business transacted does not appear to be great. The labourers as a body cannot be said to be at work, but there are men working at most all of the works. Some who had resumed have again joined the ranks of the strikers, and it is reported that they have followed this course through fear. All intimidation does not appear to have yet ceased. The house of a man who was known to be a non-Unionist was visited one evening by two men with blackened faces. The wife of the man answered the door, and they informed her that they wanted him, and that there were more of them outside. She went to get a candle, but by the time she had returned they had gone. Some explosive has been set off in the neighbourhood of the house of a man who was then a non-Unionist, but who has since joined the club through fear of further consequences. A furze-rick belonging to Capt. Bullock, who is with Messrs. Martin Brothers, has also been burnt. The carriers who recently refused to carry clay have resumed operations wherever they have the opportunity. Men who have attended some of the meetings say that most of the labourers have expressed themselves as "tired of knocking about doing nothing." There appears to be no idea as to when a strike pay-day will actually take place; it is being continually put off. The Union on Saturday issued a notice as follows:—"An assembly will take place in the Market House, St. Austell, on Wednesday next, at 10 o'clock A.M., when it is hoped the masters will meet the workmen in a friendly spirit." One result of the strike is likely to be a considerable reduction in the number of hands employed. The merchants would not have discharged any; but now that the men have discharged themselves only those wanted will be taken on. This will probably result in about a fourth of the hands being thrown out of employment.

There is nothing in the election contest now being waged at Liskeard between Mr. Courtney and Colonel Sterling which has a very direct connection with mining; but it is said that the result may to a certain extent be influenced, personal feeling running high and parties being very closely balanced, by the animosities engendered locally in connection with the Wheal Wrey, Ludcott, and Trelawny fiasco. Mr. Courtney, by the way, is a Cornishman.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

Dec. 14.—We are now making about 8000 tons of pig-iron per month in South Staffordshire and East Worcestershire, since we have 57 furnaces at work. The last put on will augment the former output to the extent of from 250 to 300 tons per week. This furnace is a new one, and by its erection the plant of Mr. Alfred Hickman, at Spring Vale, is increased to four furnaces, all blowing. Thereby the out-turn of that firm becomes nearly 1200 tons per week. The iron produced is mostly of the half-mine sort, selling just now at 2*l.* 15*s.* per ton. The same firm, however, produce a better quality, which sells at 3*l.* 15*s.* The effect of the increased make has been to somewhat weaken former quotations for inferior qualities of other makes, but the change is not very perceptible. Prices are generally what they were a week ago, and if there should be some good sales in the next few days vendors will demand more money. Finished iron is not being made in a larger quantity than at the date of my last report, and prices have certainly not improved. Except in rare instances mill and forge proprietors find it hard work to keep any of their mills going full time. The forge work doing is not, perhaps, more than four days a week. Between the maximum and minimum prices there is a difference which is unprecedented. Coal is not so strong in price as it was a month ago. Of the two, the pits are a little more employed, but full time is rare. Earl Dudley, and such like owners of best furnace coal, still demand 11*s.* per ton, legal weight, as the minimum. In the Wolverhampton district an abundance of forge coal is offered at 8*s.* and 8*s.* 6*d.* per ton.

The sacrifice which proprietors of pits and ironworks have to make to get orders abundantly shown in the weakening character of the shares of the companies. Even the Patent Shaft and Axletree Company cannot hold its own, though not long ago the shares of that company were quoted at 5 per cent. premium sales are now occurring at 3*d.* The 10*l.* shares of Claridge and Co., of the Phoenix Foundry and Engineering Works (5*l.* paid), which were a short time since not to be bought, are now offered at 2*d.* without buyers. The Pelsall Coal and Iron Company's 20*l.* shares (15*l.* paid) are offered at 6*d.* The 20*l.* shares (15*l.* paid) of the Ivy House and North Wood Colliery some people are offering to buy at 2*d.*, but there are no sellers at that figure. Ham-tad Colliery shares, however, at 20*l.* (half paid) are being offered at 1*d.*, and Cannock and Huntington, 10*l.* (4*l.* paid), are freely offered at par.

In the Dudley County Court, on Friday, Mr. George H. Hickman, ironmaster, bankrupt, passed his public examination before Mr. Rupert Kettle, his Honour saying that should the trustees at any future time require further information it would be Mr. Hickman's duty to submit to further examination. No questions were put in the public Court.

There has recently been an effort by some proprietors of collieries in the Bilston district to induce the Mines Drainage Commissioners to authorise a rate for that district. The applications have been well discussed, and at an adjourned meeting of the Bilston District

Committee, at the offices of the Commissioners, on Monday, in Wolverhampton, it was determined not for the present to recommend the ordering of another rate.

The aspect of the Iron Trade is somewhat improved in North Staffordshire, a slight demand having sprung up for bars and plates for delivery in the Liverpool and Manchester markets. But the prices are very unsatisfactory. Coal is in slightly better demand, but quietude at the earthenware works keeps the trade only dull.

REPORT FROM THE NORTH OF ENGLAND.

Dec. 13.—The revival which began to make its appearance in the staple trade of the North of England continues to be maintained, although it cannot be said that the events of the past week have done much to make it more decided and appreciable; the fact is that this is not a time of year when any great change for the better can be anticipated. The Iron Trade is really struggling forward to a better position in spite of exceptional drawbacks. It has now to face the restriction of foreign demands on account of the closing of the Baltic navigation, and the threatening, or at least uncertain, aspect of affairs in the East can hardly fail to have an otherwise than prejudicial influence. All these and other things considered, the wonder ought to be not that the iron trade should fail to exhibit more decided indications of progress, but that it should in spite of severe odds have achieved the measure of improvement that is universally acknowledged to have been attained.

The real amount of business done on Tees-side this week has been very trifling, and prices are pretty much the same as they have been for the last fortnight, No. 1 being quoted at 50*s.*, No. 3 at 47*s.*, and No. 4 forge at 45*s.* per ton. Both forge and foundry iron are in good demand, less for foreign than for home consumption. There is at the present time a very brisk trade carried on among the foundries and forges in the Midland, while both Wales and Scotland are taking larger supplies of Cleveland iron than usual, and this, too, in spite of the fact that the production of pig-iron in each of these important districts is quite up to the average.

The Chemical Trade of the Tyne, which now annually absorbs close upon a million and a half tons of raw materials, including pyrites, salt, chalk, timber, coal, and manganese, is looking more hopeful than it has done for a long time. During the last two years very little profit indeed has been earned in this important trade, while the majority of the firms engaged in it have been working at an absolute loss. Like some other staple trades, it seems as if the manufacture of chemicals on the Tyne had been overdone. Few trades have come to the front with more startling rapidity. In 1825, for example, only 406 tons of crystals of soda were made on the Tyne, but in 1867 this quantity had increased to 86,000 tons, and in some subsequent years it has considerably exceeded even that large figure. It now gives employment to upwards of 10,000 men, and represents a floating and fixed capital of not less than about three millions sterling.

The Tyne Conservancy Commissioners are about to renew their application to Parliament for the necessary powers to increase their dues and borrow money for dock and other purposes. Last year the Commissioners applied for powers to enable them to spend 500,000*l.* in the completion of the Coble Dens Dock, and 400,000*l.* for other purposes, but the application was refused in consequence of the strong opposition of the coalowners and other traders, who objected to the levying of additional dues, and pointed out that the shipping of the Tyne was already more heavily taxed than that of almost any other port. The shipping trade of the Tyne has increased very rapidly within the last 10 or 15 years, and the Northumberland Dock has more than once been so full that orders have been issued to prevent more ships from coming in. In addition to what has been done in other ways, upwards of 200,000*l.* have recently been spent in shipping staiths to meet the increased shipping requirements of the river. This increase is not in coals alone, although there has been a steady increase in the shipments of coal for at least 20 years past, and last year's shipments from the Tyne alone were a trifle under 7,000,000 tons. It is expected that as the Commissioners have modified their demands less opposition, if any, will be offered to their new Bill when it comes before Parliament.

The Finished Iron Trade of Cleveland is looking better in all but the rail department, but this branch of trade cannot be expected to improve while manufacturers of steel rails are competing at ruinously low prices for every order that comes into the market. Several steel making firms have actually accepted orders recently for steel rails at a price within 10*s.* per ton of the lowest price now quoted in Cleveland for iron rails, and so long as this continues consumers cannot, in the nature of things, be expected to countenance the iron rail trade. No further information has transpired regarding the experiments of Mr. I. L. Bell, M.P., in the production of homogeneous rails from the coarse ores of Cleveland.

Generally speaking, the Coal Trade of Durham and Northumberland remains dull and disappointing. Gas and household coals are a good deal enquired after, and yield, on the whole, tolerably fair returns, but these are the only redeeming features of the trade. Coke, although rather more in request, is miserably unremunerative, and the same remark applies to manufacturing coals of all kinds. Nor is there any real improvement to note in the steam coal trade of Northumberland, which affords cause of serious anxiety to those engaged in it, especially as there is a probability of some of the collieries being laid off.

TRADE OF THE TYNE AND WEAR.

Dec. 14.—The general trade of the district continues to improve. Iron shipbuilding is now brisk at Jarrow Hebburn, and most of the large yards, and the engine and foundry trades are also steadily improving. The greatest demand is for marine engines, and there is also a good demand for marine and other boilers. Most of the yards and foundries are well supplied with orders. The rolling-mills on the Tyne are doing better than they have done for some months. At Bell and Goodman's works on the Team where thin sheets are rolled a good business is doing. The works and rolling-mills of T. Abbot and Co., which have been standing for some time, are expected to be re-opened early in the spring. The Chemical Trade has been quiet this week, but it is confidently expected that this and all the other staple trades of the district will be much improved in the spring, but the preservation of peace, of course, is necessary to ensure this desirable state of affairs, but should war break out our hopes may speedily be nipped in the bud. There is little change in the Coal Trade, the demand for gas coal continues strong, prices from 8*s.* to 10*s.* per ton. Best house coals are in good demand at late rates—11*s.* to 12*s.* per ton. The shipments from the Tyne Dock continue large, but from Northumberland Dock, and from the various ports on the north side of the river, the shipments have been moderate. The coke trade continues to improve, and more ovens will be put in shortly should the present demand continue. The improvement in the Iron Trade is being very sensibly felt by the coke makers, as the demand is increasing not only from Cleveland but from Barrow and Workington on the west coast, and from Sheffield and Rotherham on the south. A large number of coke ovens have been idle some time, but more stirring times are evidently approaching rapidly. Best coke is selling inland at 11*s.* per ton, and second sorts at 9*s.* to 10*s.* at the ovens, but for shipments for export from the Tyne and Wear much higher prices are quoted. The steam coal trade in Northumberland continues very depressed, but there is not much distress amongst the men and their families, as a certain amount of support is given to them from the funds of the Union. The same system has been carried out to a great extent in Durham, and consequently the funds of the Union are being rapidly exhausted. The Northumberland miners are much sought after when men are required in other districts, and many of them are likely to accept the offers made. There is no doubt whatever that the Northumberland miners are the best men of their class to be found either in this or any other country.

The Northern Institute of Mechanical Engineers' meeting was held on Saturday, when the President, Mr. Moor, read a paper on "Underground Haulage, with Description of the Hauling Engines at Hetton Collieries," illustrated with plans and diagrams. The paper

shows the system carried out on an extensive scale at Hetton, with the mode of working the ropes, &c. Mr. Lawrence said that the members of the Institute who visited the Hetton Collieries in August last at the invitation of the owner would agree with him that the engines were very complete and well arranged, and that the plans now brought forward very ably illustrated all that they saw at that time. He had great pleasure in proposing a vote of thanks to Mr. Moor for having given them so much valuable information.

The adjourned inquest on the bodies of the men killed by the boiler explosion at Kibblesworth was held on Wednesday, by Mr. Graham, Coroner. Mr. Willis, the Government Inspector, was present, and Mr. Waller was also present to give evidence as to the state of the boiler, at the request of the Coroner. After the examination of a number of witnesses, Mr. Waller, in the course of a report which he read, said that owing to the incorrect manner in which patching had been done on the boiler it had got out of shape. There were 3½ in. gained in width of a horizontal strip of boiler in 10 ft. which acted as a lever to split up the seams, bind, and deteriorate the plates. The fractures were due to the strain so thrown upon these seams by the careless and unskillful manner in which the repairs had been executed, and he felt bound to say that the explosion was due to the absence of care and proper workmanship in setting out the plates of the patches, and in seeing that the proper circumference of the boiler was maintained after as before the repairs. The verdict returned by the jury was as follows:—That on Nov. 28 Joseph Hindmarsh and Joseph Askew were killed by the explosion of a steam boiler at Kibblesworth Colliery, and added to this recommendation that there should be an improvement as to the inspection of the boilers, that when repairs were necessary properly qualified persons should be employed, not only to see that such repairs were necessary, but to see how they were to be executed, as the present mode was unsatisfactory and insufficient.

*Owing to a pressure of matter at a late hour, we are reluctantly compelled to omit some of our usual Business Correspondence.

ECHOES FROM THE MINING MARKET.

With the exception of a rather better demand for lead shares, business during the past week has been quiet and uneventful. Although there has been more animation in one department, advances in it have been of a very partial character. Thus, Tankerville, East Van, Roman Gravel, Rookhope, and Van Consols have all become dearer—the majority, however, only fractionally; but, generally speaking, we may say that lead shares close firm at last week's quotations. Considering how well British lead mines have maintained their value during a period of unexampled depression in almost every trade of the country, holders can well afford to wait for those better times which, although not yet apparent, are none the less certain.

Tin shares are still quite nominal in price. Iron shares are very dull, and the market for the metal shows no symptoms of revival in price. In copper shares there is very little doing, but in coal there has been a moderate amount of business. The silver market is very quiet.

We are informed that the Chapel House meeting will take place on the 20th inst. at the colliery, Skilmesdale, near Liverpool. The directors' report and balance-sheet (the publication of which has for a long time past been looked forward to with great interest) have not yet appeared. It is to be regretted, considering how long it is the usual date these documents will be given to the shareholders, that they did not accompany the notice of the meeting. We are aware that the directors wished to wait the result of their later efforts to place the unissued debentures, and that they hoped by the end of the meeting to have accomplished the sinking of the new shares. These are not, however, in our opinion sufficient reasons for the delay. The postponement of such an important document as a balance-sheet is always to be condemned, for it causes suspicion of financial embarrassment, and exhibits a very loose method of doing business. In any company where such a system prevails the effect upon the shares can only be most detrimental. Whether good or bad the accounts should be in the hands of each shareholder at regular and known intervals, and should not be delayed merely to show affairs in the most favourable light.

We are glad to observe that in some of our cost-book mines there has been a marked improvement in the way of rendering accounts. Too many pursers, however, still adhere to the old method of stating in half-a-dozen lines the transactions of three or four months. Costs are jumbled together without any attempt at classification, the dates when they accrued are frequently wanting, the date of their payment alone appearing; or credits are placed, perhaps, in one item, such as "tin sold," without any guide to show what quantity of ore has been raised, or what it has fetched per ton; and the out-advances—the great supporter of Cornish mining, whose only source of information are the printed statements he receives from the pursers—is left completely in the dark. He cannot tell what he and his co-adventurers are paying for agency, for materials, and so forth, what the produce is realising, and what is being obtained for it, and, in the way the accounts are rendered, cannot have the remotest idea of the actual financial position of the mine. He certainly sees a balance brought down, which is favourable or unfavourable, as the case may be, but he does not know how closely costs are charged up or what his real liabilities are, and often never finds out the latter at all until the uncompromising candour of the Stannaries Court reveals to him a heavy debt, the liquidation of which may considerably cripple his resources. A cost-book mine being of the nature of a private partnership, the adventurer who finds himself confronted by heavy liabilities, and who has weak co-partners, may be called upon to pay heavy contributions years after the very name of the mine has been forgotten everywhere save in the Stannaries Court.

Without any wish to be invidious, and giving them merely as illustrations of what cost-book accounts should be, we may refer to those of West Chiverton, West Godolphin, and Wheal Grenville. In the second named in particular, each adventurer is placed in possession of as much information as though he himself looked over the books in the possession of the pursers. The accounts, on the other hand, of some of our leading tin mines are rendered in the worst possible manner, and reform is urgently needed.

West Chiverton has just made another capital sale of lead, realising 1437. 10s. We have authority for stating that the profits made during the past quarter will, after charging 1000. for expenditure on the dressing floors, allow of a dividend at least as high as the previous one—10s. per share. The shareholders are certainly to be congratulated upon now possessing excellent and most economical dressing appliances in the country.

The Holmehush and Kelly Bray United Mines are about to be worked under the title of "Holmehush (Limited)." The reduction works, to which we referred last week, are at Redmoor, and are working well. We are glad to receive better accounts than our first information led us to expect, although fresh capital will have to be raised by the new company. The Holmehush Mines are producing a monthly output of about 500 tons of arsenical ore, the value of which may be estimated at about 11000. The costs are about 500. It is intended, however, to employ a larger number of men underground, and so eventually increase the output to 1000 tons monthly. The capital of Holmehush (Limited) is to be 30,000. In shares of 10s. each, fully paid. The machinery, we are informed, is powerful, and is in efficient working order.

The market for foreign shares has been quiet. Eberhardt's, however, have risen to 9. Richmond's, on the other hand, have fallen to about the same price. The Javal directors have received some advice in anticipation of their usual letters. We do not see that much can be gleaned from the advice now to hand. The produce (all ozs. of gold) is stated "will realise about 1450.," but the probable profit is not given. We hear the latter possibly amounts to 6000., but we give the statement at our own risk. The mill had worked 15 days only, in consequence of most tempestuous weather. Tin shares close at 10s. to 12s. The Richmond Company's "run" for the week is valued at 10,000. (£50,000). The Almada and Titio Company have made a loss on the half year ending June 30 last of 75000. The amount to credit of profit and loss, after writing off 547. for depreciation of machinery and construction, is 15,524. which, however, exists in "stores, ores in course of reduction, stock at mines, and at Agilbampo and Mazatlan, and in course of transit to England." The shares are 5s. to 7s. 6d. Flagstaff, after being very buoyant at 1s. to 1½, have become quieter. Pasterns at 3s. to 5s.; Chontales, 7s. to 8s.; Exchequer, 1½ to 2½; I. X. L., ½ to 1½; List Chance, ½ to 1½; Caledonia, 6 to 8½; Don Pedro, 5s. to 6s.; and New Zealand Kapanza, 4½ to 6.

P.S.—Since writing about Javal the full advice has arrived. The profit for October is 5000. The Chontales Company have lost 1900. for the same period.

THE WEEK.

SATURDAY, DEC. 9.—It seems fated that if we have a couple of days of firm markets they must be followed by days of depression, when the improvement is at once lost, and in all probability this condition of things will last through the Conference. This morning foreign bonds and railway stocks were in good demand, and rose all round, but by one o'clock the markets were agitated by alarmist rumours, how started or by whom could not be traced. They were, however, greedily swallowed, and during the small remaining time that the House was open everything was pressed for sale. Russian of 1875 that had been done at 7½ fell below 78½. Egyptian after being firm at 52½ fell away to 50½. Consols fell ½ to 94. Tuesday next is making up day, and if the bears can on Monday prevent any recovery they will have some important differences to receive. In railways Dover A gave way ½, to 115½; Chatham Preference ½, to 68; and Caledonian ½, to 119½. Devon Consols, 3½ to 4 prem. Fortuna, 6½ to 68.

MONDAY.—The little that was done to-day consisted of purchases, which led to a moderate rise in foreign bonds, but in railways did little more than maintain previous quotations. The improvement in Russian of 1875 was ½, to 79½; in Egyptian of 1875 10s. to 51½; and in Argentine of 1868 1½, to 73½. The South-Eastern traffic showed an increase of 547., and this led to an improvement of ½ in the deferred stock, which left off 11½ to 114. As before mentioned, the other changes in the railway market were inconsiderable, and all for no notice. Central Argentine Railway shares were quoted to-day as high as 151., showing in a wonderfully short space of time a rise of cent. per cent. But for the unprecedented advance in the Government bonds, this wonderful recovery would have attracted more attention; 20. has been paid on each share. Lombard, 6½ to 64; Grand Trunk, 37½ to 38½; Illinois Central, 61 to 65; Philadelphia and Reading, 97 to 99; Erie shares fell to 85. Direct Cable shares were dealt in at 11½, on renewed hopes of an amalgamation with the Anglo Company. Javal, 12s. to 14s. Advice received by the board stating that 511 ozs. of gold were produced in 18 days, which may be valued at over 14000. Rookhope Valley, ½ to 1, and so on, when a little more preliminary work has been accomplished there will be returns of 4 and 50 tons per month, leaving a good profit. Pandora, 2½ to 2½; Aberdun, 10s. to 15s.; Almada and Titio has made a loss of 7500., shares nominally ½ to ½; Miner's Safe shares were dealt in at 9½, the lowest price touched for many months.

TUESDAY (Making-up Day).—The account proved to be a very small one, and occupied only a short portion of the day. The rates of railways were very light, no change exceeding ½. There was a backwardation on Berwick and Birmingham, also averaging ½, though in a few exceptional cases ¾ was paid. York, A. and North British were even. On Dover, A. the contango was ¼; there was a good deal of grumbling among the dealers of this stock, owing to an overestimate of 9000. in the traffic made, and afterwards corrected, by the pipeline. There is

now a net decrease, compared with last year, of nearly 24,000. Caledonian were continued at 120, East London at 24½, North British at 106, and Brighton, A. at 103. Argentine of 1868 were continued at 73½, and some severe "backs," were at some cases 2½ per cent. was paid, but in the afternoon there was a fall of 3. Egyptian 1875 were continued at 51, but did not close better than 50½. The Khedive Loan after the Daira meeting dropped to 40, but was made up at 44. The Committee to-day granted a quotation to the Argentine Gold Company, and the shares were made up at 54. Don Pedro made up at 5s., New Zealand Kapanza at 4½, San Pedro at 10s., Wheal Grenville at 1, and Sweetland Creek at 2s. 6d. Russian of 1873 dropped to 75½, and at the close the backwardation had nearly disappeared. The poor success of the recent internal loan does not give much encouragement to bondholders, though it may have led to the more pacific views of the Imperial Government.

WEDNESDAY.—There was a recovery of 1½ to-day in all the Argentine issues. Messrs. Baring having notified to the House that the dividends due in March on the 1871 loan would be sent off in January. When the last payment was due it was not believed until the actual day that the coupons would be paid. The present parade can hardly be considered other than a sign of weakness; the last regular payment on the Egyptian bonds was, it may be remembered, premature. The railway traffic showed an improvement; North British had an increase of 5715., and rose ¼ to 120; Great Eastern had an increase of 5024., and improved to 50; the increase on Birmingham was 4682., and on Berwick 4625.; the Midland Company had a decrease of 1275. In the mining market Argentine improved to 5, and Russia Copper to 2. Egyptians closed no better than 49½, and Turkish Fives were 11 to 11½.

THURSDAY (Pay-Day).—Consols opened firm at 94½ to 94½, but fell away under pressure of a few sales, and at the closing of the Official List (three o'clock) were not better than 93½ to 94½. At the same hour Egyptians of 1875 were no better than 48½, while Russians of the same year were below 97. While railways in general were neglected, the old fusion cry between South Eastern and Chatham was again started directly after the account was over. In the morning the former were dull at 113½, and the latter at 68½, but each quickly rose 1 per cent. Rookhope Valley, 18s. to 20s.; Bilson and Crump Colliery, 7½ to 8.

FRIDAY.—Opening: Late last night the scheme for a fusion between the Chatham and South-Eastern railway Companies, signed by the respective chairmen, was forwarded to the various "City editors." It has naturally this morning occupied chief attention, and led to important changes in prices. The proposal stipulates that "there shall be no injurious official interference in the management," thus quieting the fears of the general body of directors and a host of officials. Dover A. opened 115½ to 115½, 3½ higher than last night. Chatham (pref.) 75½ to 75½, 5 higher; while the ordinary touched 24½, being last night only 22½. Malpas, 5½ to 7½; Malabar, 6s. to 8s.; Don Pedro, 7s. to 9s.; Javal, 10s. to 12s. 6d.; Leadhills, 6½ to 7; Chapel House, 3 to 3½; Chicago, 6 to 6½. One O'clock: Railways are still higher, Brighton A. are now over 105, and an advance of 1½, to 48½ has taken place in Metropolitan District, Egyptian, 48½ to 48½; Russian (1873), 75½ to 75½; Great Eastern, 104½ to 105½. Four O'clock: Prices are not quite so good in some instances as they were, but a very firm tendency is shown. Chatham (ordinary), 23½ to 23½; ditto pref., 75½ to 75½; Dover A. 115½ to 115½; Metropolitan District, 48½ to 48½; Brighton A. 105½ to 105½. Richmond, 8½ to 9; Cardiff, 15½ to 17½; Parys Mountain, 10s. to 12s. 6d.

Birchall Lane, Dec. 15. FERNAND R. KIRK.

GOLD YIELD OF CALIFORNIA.—The gold yield of California this year will probably be about \$20,000,000, or as much as it was in 1875. Of this two-thirds may come from placer claims, and the remainder from quartz. The greater part of the placer gold is obtained by hydraulic claims in the channels of dead rivers, with deposits of auriferous gravel several hundred feet deep, and a quarter or a half mile wide. Although many acres of deep gravel beds have been washed away to the bed-rock, large areas remain, and promise to yield a good profit for many years to come, though the product will doubtless decrease gradually. The placer mining camps which have no hydraulic washings are steadily declining, if they have not already disappeared, or if they have not some other resource. The placer workings of Yuba, Shasta, Tuolumne, and Mariposa counties amount now to little; in Plumas they are nearly as productive as ever. The gold quartz mining industry of California is stationary in its general character. A large number of auriferous lodes, and even of mines partly opened, are neglected because the gross average yield per ton will not exceed \$10, and that figure does not, in most cases, leave any profit; though in Australia, where labour costs half as much and supplies are cheaper, many quartz mines are kept going for a gross yield of \$5 per ton. In the colony of Victoria which has for 25 years produced, and now continues to produce, about as much gold as California, two-thirds of the precious metal comes from quartz, and only one-third from placer mines, while here the proportion is reversed. How much quartz gold our State could produce if labour could be had at the same rate as in Australia is a matter of conjecture. Some intelligent miners say five times as much. If quartz could be extracted and reduced for \$5 per ton, work would soon be commenced on hundreds of mines to find out whether they could not be made to pay. For every gold-quartz mine now worked in California there are not less than 20—perhaps 50—claims held in the hope that they can be made profitable in the future.—*San Francisco Alta.*

BLUE TENT HYDRAULIC GOLD MINE.—We made a visit to the claims belonging to the Blue Tent Consolidated Water and Mining Company, located at Blue Tent, on Tuesday, and found everything working satisfactorily. Those of our readers who have not been upon the ground and made a personal inspection of them can form no idea of the extent or value of the property. There is ground enough to last for 10 years, and the gravel now worked is sufficient proof that it contains gold in very liberal quantities. Free gold is plainly visible in a good deal of the gravel cement, and the clean-ups prove that the gravel is rich, and is bound to pay splendidly when thoroughly opened. We intend in a few days to give a full item, and will defer further comments until then.—*Nevada Daily Transcript, Nov. 23.*

WHEAL GRENVILLE.—There is a wholesome competition here for the supply of materials, and Capt. Dodge, who has the entire confidence of the managing committee, is instructed to buy the best in the cheapest market. Although mainly in the hands of a London company, the purchase of everything and the amount of work done, as well as the costs, are carefully watched by business men who are well acquainted with prices. We are glad this is so. They find the bulk of the capital; and they only do themselves, and mining generally, justice when they see that their money is spent to the best advantage. Promoted stamps are being recommended to them for economic and efficient tin-dressing, and we understand that the committee are willing to contract for work to be done by these, so that the stamps may prove their superiority. A new pumping engine is also very much wanted. Without this it will be difficult to sink and drive so as to fully develop the mine.

COST OF MINING COAL.—The Main Colliery coal supplied the Providence Mines during the past few months cost the adventurers 12s. 11d. per ton, including freight. Is not this in marked contrast to what is paid by other mines? KILBURN.—This mine has sold 10 tons of tin, realising the good price of 452. 10s. per ton. This is the second parcel sold since the meeting, and by the time the adventurers again meet it is fully expected that 40 tons will have been sent to the smelting-house. The five stamps will soon be ready to work, and then the returns will be greatly increased. The wize in the bottom of the 30 is producing 5 tons of copper per fathom, worth about 12s. per ton. The other points in the mine are still looking well.

NEW COOK'S KITCHEN.—Capt. Josiah Thomas, the manager, was underground here on Friday, and reported that the lode in the 100 ft. level, which has just been drained of water, is very fine ore. Some splendid quality ore from there was broken out and raised that day. In the 125 something good is expected very shortly. Capt. Thomas says they have tin enough now to pay costs. These are very quick returns, indeed, for a mine that has only been re-started a month or so. It created quite an excitement at Redruth on Friday night. Shares flew to over 2½ per share. Rather too good to last.

PIDYANDREA UNITED.—We hear a very good account of these mines. The lode in the 50, which when worked last was very poor, is now worth 90. a ton. The other points are looking well. When these mines stopped, a short while since, a loss was being made monthly, but now we hear from good authority the tide is completely turned, and the few now connected with the concern are making a good thing out of it. The present company seems to have had everything in their favour; the mines have much improved, and they bring it out more uncommonly cheap; in fact, the property realised only a small fraction of its value.—*West Briton.*

FIRE-DAMP.—An explosion of fire-damp of a most alarming and altogether unusual nature took place at Cadzow Colliery on Saturday. The colliery is being opened by the Cadzow Colliery Company, and when in full operation it will be the largest in Scotland. No. 1 pit has been sunk past the main coal to the splint, and it was here that the explosion occurred. At that time three men were engaged preparing a stage or seat for the cage at the splint coal seam. In the course of their operations a large blower of gas burst from a fissure in the coal, and was at once ignited by the lights carried by the men. They set themselves without delay to suppress the flame, but finding this impossible, they communicated the occurrence to the manager, Mr. Smith. It is not too much to say that the skilful manner in which Mr. Smith set to work saved the colliery from being wrecked, and probably from resulting in great loss of life. But still the steps taken were unsuccessful in subduing the burning of the shafts of the colliery and damping out the flame had at last to be resorted to. For this end a large staff of workmen were engaged on Saturday and yesterday. The engine-houses, offices, and pit surroundings are charged with gas, and as a precautionary measure, entrance to them has been stopped by means of barricades, and the public have been prevented from approaching too near by patrols of the county police. Mr. Ralph Moore, Inspector of Mines, visited the scene of the accident on Saturday, and was again on the ground yesterday. We understand that no blame is attachable to anyone, and that all concerned deserve credit for the way in which they have conducted themselves. It is believed that several weeks will elapse before working operations can be again commenced at the colliery. Meanwhile a large number of miners and sinkers will be thrown out of employment.—*Glasgow Herald.*

NORTH CORNWALL (Lead).—It is intended as the spring advances to work this mine with all possible rapidity, and it is expected that the result will be most beneficial for the neighbourhood. A good mine in any direction is a prize, as far as mining industry is concerned, but in a locality of this description its importance can scarcely be exaggerated.

COAL MINES REGULATION ACT, 1872.

EXAMINATION FOR MANAGERS' CERTIFICATES OF COMPETENCY.
DISTRICT UNDER THE CHARGE OF THOS. E. WALES, Esq.,
H.M. INSPECTOR OF MINES.

NOTICE IS HEREBY GIVEN, that an EXAMINATION for MANAGERS' CERTIFICATES OF COMPETENCY, under the above-named Act, will be HELD on the 9th, 10th, and 11th days of January, 1877, and CANDIDATES INTENDING TO PRESENT THEMSELVES at such EXAMINATION must, on or before the 31st day of December, notify such intention to the Secretary of the Board of the above mentioned District, from whom all information as to particulars can be obtained.

By order of the Board,
CHAS. HY. JAMES, Secretary.

8, Courtland-terrace, Merthyr Tydfil.
N.B.—Persons who do not reside within the District are equally eligible for examination with those who do.

COAL MINES REGULATION ACT, 1872.

EXAMINATION FOR MANAGERS' CERTIFICATES OF COMPETENCY.
DISTRICT UNDER THE CHARGE OF JAMES WILLIS, Esq.,
H.M. INSPECTOR OF MINES.

NOTICE IS HEREBY GIVEN, that an EXAMINATION for MANAGERS' CERTIFICATES OF COMPETENCY, under the above-named Act, will be HELD on the 2nd and 3rd days of January, and CANDIDATES INTENDING TO PRESENT THEMSELVES at such EXAMINATION must, on or before the 23rd day of December, notify such intention to the Secretary of the Board of the above mentioned District, from whom all information as to particulars can be obtained.

By order of the Board,
GEO. SOUTHERN, Secretary.

N.B.—Persons who do not reside within the District are equally eligible for examination with those who do.

FOREIGN BONDS.

FOR RELIABLE INFORMATION ON FOREIGN STOCKS,
consult our MONTHLY PRICE LIST.

December Edition ready (post free) on application to—
Messrs. JOHN ABBOTT AND CO., STOCK AND SHARE BROKERS,
4 AND 5, PALMERSTON BUILDINGS, LONDON, E.C.

INVESTMENTS.

SPECIAL SELECTION OF SHARES MOST ADVISABLE TO PURCHASE, soon to be TWICE their PRESENT PRICE, then having to go much higher to reach their value; also, Shares at present paying well on purchase money.
Address, Mr. J. H. HITCHINS (who has had 40 years' experience), Gresham House, London, E.C.

FAVOURABLE OPPORTUNITY FOR A PARTNER.

THERE is an OPENING now for a THIRD PARTNER in a very compact and eligible IRONWORKS, where puddling, rolling, &c., are carried on, on a moderate scale. Situation for coal, pig-iron, and labour is all that can be desired. There is a market for the products on the spot, and the present partners are in every way such as any gentleman would be glad to be associated with. The machinery is new and quite abreast with all modern improvements, and steam-power ample and perfect: £5000 will be required to join.
Application to be made by letter, marked "Ferrum," to the EDITOR of the London Iron Trade Exchange, 82 and 83, Cannon street, London.

VALUABLE PROPERTIES FOR DISPOSAL.

A PRACTICAL MINER, of twenty-eight years' experience, has EXPLORED for the last six months, and can introduce to CAPITALISTS PROPERTIES in—

IRON ORE (in Limestone or Slate).	MANGANESE.
COAL.	ANTIMONY.
L'AD.	SULPH. LIME.
COPPER.	CUMBER. SLATE.

Principals only, or their solicitors, need apply.
N.B.—No introduction fee required, remuneration only looked for in the event of any benefit accruing to the speculators.
Address to Mr. W. S. BERRON, Ireby, Mealgate, Carlisle.

ST. JOHN DEL REY MINING COMPANY (LIMITED).
Notice is hereby given, that the HALF YEARLY ORDINARY GENERAL MEETING of this company will be HELD at the City Terminus Hotel, Cannon-street, London, on WEDNESDAY, the 20th day of December next, at two o'clock precisely. To receive and adopt the directors' half-yearly report, and to declare a dividend.
JOHN HOCKIN, Managing Director.
8, Tokenhouse Yard, E.C., 4th December, 1876.

MALPASO GOLD WASHING COMPANY (LIMITED).
Notice is hereby given, that the ORDINARY GENERAL MEETING of the Malpas Gold Washing Company (Limited) will be HELD at the offices of the company, No. 1, Winchester House, Old Broad-street, London, E.C., on TUESDAY, the 19th day of December, 1876, at Two o'clock.
The Transfer-books will be closed from the 18th instant to the 6th proximo inclusive.
By order,
SYDNEY A. COBBETT, Secretary.

1, Winchester House, Old Broad-street, London, E.C., Dec. 5, 1876.

MALABAR GOLD WASHING COMPANY (LIMITED).
Notice is hereby given, that the ORDINARY GENERAL MEETING of the Malabar Gold Washing Company (Limited) will be HELD at the offices of the company, No. 1, Winchester House, Old Broad-street, London, E.C., on TUESDAY, the 19th day of December, 1876, at Two o'clock.
The Transfer-books will be closed from the 27th instant to the 6th proximo inclusive.
By order,
SYDNEY A. COBBETT, Secretary.

1, Winchester House, Old Broad-street, London, E.C., Dec. 5, 1876.

RICA GOLD WASHING COMPANY (LIMITED).
Notice is hereby given, that the ORDINARY GENERAL MEETING of the Rica Gold Washing Company (Limited) will be HELD at the offices of the company, No. 1, Winchester House, Old Broad-street, London, E.C., on TUESDAY, the 19th day of December, 1876, at Three o'clock.
The Transfer-books will be closed from the 27th instant to the 6th proximo inclusive.
By order,
SYDNEY A. COBBETT, Secretary.

1, Winchester House, Old Broad-street, London, E.C., Dec. 5, 1876.

THE CHAPEL HOUSE COLLIERY COMPANY (LIMITED).
Notice is hereby given, that the THIRD ORDINARY GENERAL MEETING of the members of this company will be HELD at the colliery, Skilmesdale, near Liverpool, on WEDNESDAY, the 20th day of December instant, at Two o'clock, P.M., for the purpose of receiving the directors' report and the statement of accounts, and to transact the ordinary business of the company.
By order of the Board,
W. H. HARRISON, Secretary.

Offices: No. 1, Palmerston Buildings, London, E.C., 13th December, 1876.

TANKERVILLE MINING COMPANY (LIMITED).
Notice is hereby given, that the Directors of the Tankerville Mining Company (Limited) have THIS DAY DECLARED A DIVIDEND OF FIVE SHILLINGS PER SHARE (free of income tax), PAYABLE on and after Dec. 30.
Notice is also hereby given, that the Transfer-books of the company will be closed from the 15th to the 30th of December, both days inclusive.
By order of the Board,
J. H. MURCHISON, London Manager and Secretary.

8, Austinfriars, London, November 29, 1876.

CONSOLS, RAILWAY STOCKS, FOREIGN BONDS, and every description of SECURITIES PURCHASED and SOLD, for cash or account, by Messrs. THORNTON AND CO., 30, BROCKLEY BUILDINGS, SOUTH JOHN STREET, LIVERPOOL. SPECIAL BUSINESS IN SHARES of all the principal HOME and FOREIGN MINES, in connection with which class of investments the experience of nearly half a century enables Messrs. THORNTON AND CO. to offer sound advice, based on reliable information.

A selected list of DIVIDEND PAYING SECURITIES and INVESTMENTS FOR A RISE forwarded on application.
Bankers: The Adelphi Bank, South John-street, Liverpool.

INTEREST—HIGH AND LOW.

INVESTMENTS.

FOR INFORMATION concerning DIVIDEND-PAYING SECURITIES of every description, and ACCURATE PRICES of STOCKS and SHARES, with other invaluable data—see JOHN B. REYNOLDS' MONTHLY SHARE LIST, and SELECT LIST, forwarded gratis on application to JOHN B. REYNOLDS, 70 and 71, Bishopsgate-street Within, London, E.C.

MESSRS. KEENE AND LAMBERT.
STOCK AND SHARE BROKERS,
METROPOLITAN BUILDINGS, 63, QUEEN VICTORIA STREET, E.C.
Bankers: London and Westminster Bank, Lothbury.

MONEY ADVANCED. in sums of £500 and upwards, on FREEHOLD or LEASEHOLD PROPERTY, SHARES, STOCKS, and PERSONAL SECURITIES.
Address, THORNTON AND CO., Accountants, Mortgage Brokers, Valuers, &c., 30, Brockley Buildings, South John-street, Liverpool.

MR. W. TREGELLAS, 122, BISHOPSGATE STREET WITHIN, E.C.,
Deals in all descriptions of Stocks and Shares at close market prices.

RUBBON, DENBIGHSHIRE. IN LIQUIDATION.
THE GARDEN LODGE COAL, COKE, AND FIRE-BRICK
COMPANY (LIMITED).

IMPORTANT SALE of the LEASEHOLD INTEREST in the GARDEN LODGE COLLIERY, situated only one mile from the Rubbon Station, on the Great Western Railway, into which there is a siding.

MESSRS. CHURTON, ELPHICK, AND CO. have been favoured with instructions from the Official Liquidator to SELL, BY AUCTION, at the Queen Hotel, Chester Railway Station, on Saturday, the 20th day of January, 1877, at Twelve noon precisely, in One Lot, and subject to such conditions as will be then produced, the

LEASEHOLD INTEREST

in the GARDEN LODGE COLLIERY, together with the WHOLE of the VALUABLE FIXED PLANT and MACHINERY connected therewith (a schedule of which will be produced at the time of sale, and in the meantime can be seen at the colliery, or at the office of the auctioneers).

The Colliery and Mines are held under a lease for 30 years, from 1st March, 1863 (with power to extend for seven years further), and on very favourable terms as regards royalties, &c. The Mines comprise 13 valuable seams of coal under upwards of 180 acres of land, the united thickness of which seams is about 46 feet. Also excellent beds of ironstone and fire-clay, which are now being worked. There are also 24 coke ovens recently erected on the estate by the company on the most approved principle, with all usual fittings and appliances. The concern (except the coke ovens) is in full working order, and satisfactory reasons can be given for winding up the company.

N.B.—The wagons, stock of coal, slack, ironstone, and fire-clay to be taken by the purchaser at a valuation, the amount of which will be declared at the time of sale. The purchaser will have the option of taking all loose materials, stock in trade, office furniture, and other effects, at a valuation, the amount to be declared at the time of sale.

The Premises can be viewed, and full details had, on application to Mr. JOHN TURNER, Garden Lodge, Rubbon; to Messrs. CHURTON, ELPHICK, and Co., Auctioneers, Chester; or to Mr. JOSEPH HEAP, Rochdale, Solicitor to the Liquidator.

MANGANESE AND SULPHUR ORES.

MESSRS. WALTER BUTLER AND CO. MINERAL MERCHANTS, AGENTS, AND BROKERS, ARE OPEN TO TREAT for the PURCHASE of LARGE QUANTITIES of the ABOVE or other MINERALS, to be delivered in Liverpool.

Address, with particulars, stating quality and price, to Leith Office, Moorfields, Liverpool.

TO CAPITALISTS OR PROMOTERS DESIRING TO MAKE MONEY.

TO BE SOLD, a COLLIERY ROYALTY IN NORTH WALES, close to rail shipping port; several shafts partially sunk; coal fully proved of FOUR SEAMS of good HOUSE and STEAM COALS, in an area of upwards of 400 acres of surface. It adjoins the West Mostyn Coal Field, just successfully launched, where under seams (including Cannel) have been proved in addition to the above; so that eminent engineers state that the available coal in this royalty may be 88 feet thick.

Present holder will arrange to sell the entire to an individual or company for what it has cost him, dividing all profit made above, which, even in a normal state of the coal trade, must be large. Certain and safe surveys by eminent Staffordshire and Welsh engineers have already been made.

Address, Mr. WATSON, 27, Hamilton Square, Birkenhead.

FOR SALE, a 18-horse power PORTABLE STEAM ENGINE, with link motion reversing gear, ready for delivery.

A 25-horse power PORTABLE.

An 18-horse power VERTICAL STEAM ENGINE, with link motion reversing gear, also gear to wind and pump.

A 9 ft. PAN MORTAR MILL, VERTICAL ENGINE, and BOILER.

Apply to—BARROWS AND STEWART, ENGINEERS, BANBURY.

SULPHATE OF BARYTES FOR SALE.—Fine powdered, beautifully white; also in the Rock or Crude State, free from Lime and Metallic Oxide.

Samples on application to—

RUTHWAITE BARYTES MINING COMPANY, Nov. 17, 1875. WHITEHAVEN.

PATENTS FOR INVENTIONS

AT HOME AND ABROAD.

REGISTRATION OF DESIGNS, TRADE MARKS, &c.

MR. ERNEST DE PASS,

PATENT AND REGISTRATION AGENT

(Successor to the late Mr. M. Henry),

FLEET CHAMBERS, 68, FLEET STREET, LONDON.

A Pamphlet of Information, containing full particulars, forwarded, post free, on application.

MR. W. F. STANLEY, MATHEMATICAL INSTRUMENT MANUFACTURER TO H.M. GOVERNMENT, COUNCIL OF INDIA, SCIENCE AND ART DEPARTMENT, ADMIRALTY, &c.

MATHEMATICAL, DRAWING, and SURVEYING INSTRUMENTS of every description, of the highest quality and finish, at the most moderate prices.

Price-list post free.

ENGINE DIVISION TO THE TRADE.

ADDRESS—GREAT TURNSTILE, HOLBORN, LONDON, W.C.

THE BARLEY BROOK COAL AND CANNEL COMPANY, LIMITED.

(LATE W. J. DARBYSHIRE AND SON.)

Capital £20,000, in 4000 Shares of £5 each.

The first issue will be limited to 3000 Shares, nearly half of which have already been subscribed for.

£1 per share payable on application, and £1 on allotment, and the remainder in calls not exceeding £1 10s. per share, at intervals of not less than two months. Priority will be giving to shareholders in any future allotment.

DIRECTORS.

BENJAMIN SMITH, Esq., The Priory, Sale—Chairman of the Butler Green Cotton Spinning Company (Limited), Oldham.

JOHN CURRIE, Esq., Whalley Range, and King-street, Manchester.

Mr. Councilor DAWSON, Roslyn Villa, Broughton, Manchester.

JOHN DARBYSHIRE, Esq., Colliery Proprietor, Pagefield, Wigan.

ISAAC SMITH, Esq. (Smith and Gregson), Coal Merchant, Heywood.

LOMAS COUPE, Esq., Colliery Proprietor, Norden, Rochdale.

WILLIAM GREGSON, Esq. (Gregson and Sons), Coal Merchants, Bolton.

BANKERS.

THE MANCHESTER AND COUNTY BANK, Manchester, and Branches.

SOLICITOR.

CHARLES J. ROBERTS, Esq., 8, Marsden-street, Manchester, and Rochdale.

CONSULTING ENGINEER.

WILLIAM BESWICK, Esq., M.E., Town Hall Chambers, Rochdale.

AUDITOR.

GEORGE NESBITT, Esq., F.M.I.A., Mount-street, Manchester.

SECRETARY—W. H. CLEMESHA.

REGISTERED OFFICER.

9, 11, AND 12, QUEEN'S CHAMBERS, JOHN DALTON STREET, MANCHESTER.

ABRIDGED PROSPECTUS.

This company is formed for the purpose of purchasing and working the colliery known as the Barley Brook Colliery (late W. J. Darbyshire and Son), immediately adjoining the collieries of Messrs. Rylands and Sons (Limited), covering an area of 112 acres, together with the whole of the valuable machinery and working plant and appliances of the same—the latter of which alone is valued at £5500.

The colliery possesses unusually favourable transit facilities, being situated within about 600 yards of the Wigan Station of the Lancashire and Yorkshire Railway Company, and connected therewith by a siding and tramway from the pit bank, and also connected with the Leeds and Liverpool Canal by a tramway and wharf.

The mines are in thorough working order, and 400 tons per week are being raised, and with a small outlay, as suggested in the Mining Engineer's report, they will be capable of yielding upwards of 1000 tons per week, without additional winding power or plant.

The total thickness of coal and cannel over the whole area of the property is 8 ft., and it is computed to contain 1,221,950 tons, the whole of which can be worked from the shafts now in operation. The quality of both cannel and coal is well known, and they find a ready market. Contracts have been entered into for the longest period for the supply of cannel at very remunerative prices, of which the company will derive the full benefit. One of the contracts is with a gas company for cannel at the rate of 19s. per ton at the pit bank.

The cost of getting, including wages, royalties, wear and tear, and loading in wagons, does not exceed 5s. per ton. The present selling prices in the district are as follows:—Cannel, 19s.; King coal, 9s. 6d. to 10s. 6d.; Wigan Five-feet, 8s. 6d. to 9s. 6d.; and on the cost of getting before stated will show a very handsome profit, and will make this colliery one of the most remunerative in the Wigan district, and after allowing for all reasonable contingencies the undertaking may be fairly expected to yield annual dividends of 20 per cent. at least.

The mines are peculiarly free from water, also from gas, naked lights only being used. The plant is unusually copious and good, comprising every requisite for a colliery yielding 1000 tons per week.

The agreement, together with the Articles of Association, may be seen at the offices of the Solicitor to the company; the Articles of Association may also be seen, and prospectuses, together with the report of Mr. William Beswick, Mining Engineer, of Rochdale, may be obtained at the offices of the company, Queen's Chambers, John Dalton-street, Manchester.

The SHARE LIST WILL CLOSE ON THURSDAY, the

21st instant.

DECEMBER 19TH, 1876.

AN UNUSUALLY GOOD LOT OF MINING MACHINERY AND MATERIALS FOR SALE.

MR. H. V. NEWTON, Auctioneer, Valuer, &c., Polstrong Farm, Camborne, is favoured with instructions from the adventurers of the undermentioned Mine to SELL, BY AUCTION, on Tuesday, the 19th December, 1876, at Twelve noon precisely, at NEW ROSEWARNE MINE, in the parish of Gwinear, the WHOLE of the VERY

VALUABLE MACHINERY AND MATERIALS, viz.:

ENGINE SHAFT.
 ONE 66 in. cylinder PUMPING ENGINE, 10 ft. stroke, with TWO BOILERS, 11 tons each; iron balance bob; 10 arm capstans; shears, with shives and brasses; 80 fms. of 13 in. and 12 in. pitch nine main rods; 18 pairs of fagotted iron strapping plates; 2 16 in. H pieces; 2 16 in. top doorpieces; 2 16 in. flat bottom windbores; 2 15 in. plunger poles, with stuffing boxes and glands; 2 17 in. pole cases, 12 ft. long; 54 16 in. pumps; 1 15 in. clack seat piece; 1 15 in. working barrel, 14 ft. long; 1 15 in. sinking windbore; 1 13 in. clack seat piece; 1 13 in. working barrel, 11 ft. long; 1 14 in. windbore; 170 fms. steel wire capstan rope; horse whim and shaft tackle; 18 pairs of fagotted iron strapping plates for main rods; 2 tons of rod pins and flange bolts; pump and door rings; 2 tons of large staples and glands; a quantity of small ditto; 4 pairs of best fagotted caps; 13 in. and 15 in. buckets, prongs, and joints; 17 fms. wood bucket rods, 6 by 6, with plates, joints, &c.; 60 fms. good iron stove ladders.

BICKFORD'S SHAFT.

1 balance bob; capstan and shears; 150 fms. 8 in. rods; 5 tons bucket rods; 40 pairs strapping plates for 8 in. rods; several large and small shives and rods; 1 10 in. working barrel; 1 10 in. clack seat piece; 1 10 in. windbore; 1 9 in. working barrel; 1 9 in. clack seat piece; 1 9 in. windbore; 12 11 in. pumps; 6 10 in. pumps; 9 in. and 10 in. bucket prongs, &c.; 120 fms. 1 in. steel wire rope; whim bobbles, kille, chain, &c.; 2 iron tram wagons; 1/2 ton of rail wire; steam whim cage and driving wheel, &c.

TIN FLOORS.
 3 centre head and 3 hand buddles; a good water wheel and driving gear; kieve, sieves, &c.; 20 rag frames; 1 hand ditty; 70 fms. of 13 in. launders; stands, 200 fms. of 9 in., 8 in., 7 in., and 6 in. launders, with stands, hutches, &c.; a splendid tin hutch, 15 ft. long, 5 ft. high, 4 ft. 8 in. wide; beam, scales, and weights; weighing stand, wheelbarrows, &c.; several wood sheds.

SMITH'S SHOP.

Smith's tools, anvils, bellows, taps, rests, plates, &c.; screwing stock, mandril, miners' tools, &c.; a large quantity of useful wrought and cast iron.

CARPENTERS' SHOP.

Carpenters' bench, saw pit frame, large grindstone, winch, lifting jack, and hand screws.

STORE ROOM.

Borer steel, hoop iron, tallow, oil, rope, hemp, &c.; a good fan air machine; 2 1/2 in. drop screw (new); miners' dial, &c.

20 lots of excellent timber, and the account house furniture.

The Auctioneer begs to call the particular attention of mine agents and others to the above. A better lot has never been offered for sale in the county.

Lunches at Eleven o'clock; sale at Twelve o'clock.

New Rosewarne Mine is situated about a mile from Gwinear Road Station, three miles from Hayle, and three miles from Camborne.

In the High Court of Justice—Chancery Division.

VICK-CHANCELLOR MALINS.

IN THE MATTER OF THE COMPANIES ACTS, 1862 AND 1867,

AND IN

IN THE MATTER OF WAYNE'S MERTHYR STEAM COAL AND

IRON WORKS (LIMITED).

GLAMORGANSHIRE.

WAYNE'S MERTHYR STEAM COAL AND IRON WORKS (LIMITED).

Important Sale of Extensive Leasehold Estates, known as the Gadlys Collieries, Blast Furnaces, Iron Works, and Fire Brick Works, situate at Aberdare, in the county of Glamorganshire.

MESSRS. JOSEPH COCKSEY AND SON have received instructions to SELL, BY AUCTION, at the Mart, Tokenhouse-yard, London, E.C., on Wednesday, the 20th day of December, 1876, at One o'clock precisely, in One Lot, subject to conditions, the above-mentioned HIGHLY VALUABLE LEASEHOLD PROPERTY, comprising—

The Gadlys Estate, consisting of farm lands, lands sub-let on building leases, houses, offices, workmen's dwellings, blast furnaces, ironworks, pit shafts, colliery plant and erections, lands used for colliery purposes, tramways, locomotive railways, and other property, containing together 110 acres of surface land, or thereabout, with the unwrought coal, ironstone, fire-clay, and other minerals therein; and three plots of surface land, without minerals, containing together 88 acres 3 rods 34 perches, or thereabouts; parts of Hirwaun Common, allotted to the Gadlys Estate, part of one of which sub-let on a building lease, and the remainder for agricultural purposes; the whole being held under lease for a term of 65 years, from the 25th March, 1858, subject to certain mine rents mentioned in the lease; minimum rent of mines, including rent of entire surface, £160 per annum.

The unwrought coal, ironstone, fire-clay, and other minerals in the Tyr Fry and Tyr Evan Bach Tracts estates, containing together 44 acres 0 rods 35 perches with the pit shafts, colliery plant and erections, blast furnaces, tramways, locomotive railways thereon, held under lease for a term of 60 years from the 25th March, 1841, subject to the royalties and other payments therein mentioned; minimum mine rent, £150 per annum.

The unwrought coal, ironstone, fire-clay, and other minerals in the Cwm, Llynwelly, Duffryn-dare, Dyfflas, Tyr Rhos, and other estates, containing together 722 a. 2 r. 17 p., or thereabouts, held under various leases, part of which expire about the years 1900 and 1910, and the remainder about the year 1925, subject to the royalties mentioned in the various leases, the aggregate minimum mine rent being £258 per annum.

The total area of minerals in the several leaseholds is 1280 a. 3 r. 12 p. All the loose stocks, stores, tools, implements, and office and household furniture of and belonging to Wayne's Merthyr Steam Coal and Iron Works (Limited), in and upon the above-mentioned premises, will be included in the sale.

The property is intersected by, and in direct communication with, the Aberdare and Dare Valley branches of the Taff Vale Railway and the Vale of Neath branch of the Great Western Railway, contiguous to the Aberdare Stations, connecting it with the shipping ports of Cardiff, Swansea, and Newport. The Dare and Merthyr branches of the Great Western Railway also pass through the property.

The unwrought minerals comprise large areas of the celebrated Merthyr Smokeless Steam Coal, in such extensive demand for navigation and other purposes, and of the argillaceous iron ores, so well known for the manufacture of the best qualities of Welsh iron.

For further particulars apply at the offices of the company, 7 and 8, Great Winchester-street Buildings, Broad-street, City; Messrs. COPE and Co., solicitors, 4, Victoria-street, Westminster; Messrs. JOHNSONS, UPTON, BUD, and ATKER, solicitors, 20, Abchurch-lane, City; HENRY DAVEN, provisional official liquidator (Debit, Dever, Griffiths, and Co.), 4, Lothbury, London.

MINERAL ESTATE, LEICESTERSHIRE AND DERBYSHIRE.

MESSRS. DAVENPORT, GERMAN, AND ALLEN WILL SELL, BY AUCTION, at the Great Western Hotel, Birmingham, on Thursday, the 21st day of December, 1876, at Three for Four o'clock in the afternoon, subject to conditions of sale (embracing the Common Form Conditions of the Birmingham Law Society), then to be read. A very valuable

MINERAL ESTATE.

Situated at OAKTHORPE, in DERBYSHIRE and LEICESTERSHIRE, or one of them, the surface containing about ONE HUNDRED AND TWENTY-FIVE ACRES of excellent arable and meadow LAND, with a commodious farm-house and out-offices, extensive farm buildings, and productive garden, in the occupation of Mr. Joseph Massey, now let, including two cottages, and the mine dead, and game, at rentals amounting together with the mine dead rent to £441.

Together with the well-known Moira Main and various other seams of Coal, Fire clay, Pot clay, and other Minerals under the Estate, and under an adjoining field, containing 5 a. 3 r. 7 p.

The Mines are, with others, leased to the trustees of the late Marquis of Hastings at the low royalty of one-tenth of the selling price, and a way-leave for foreign mines at 1d. per ton, with a mine dead rent of £100.

The mineral area extending under the canal, turnpike, and other roads, and including the mines under the said adjoining field, with full powers of working, is 136 acres, and by the acquisition of some adjacent glebe and other lands and mines on the deep side of the estate (negotiations for the purchase of which have been entered into, and may be renewed), a colliery plant might be at once established, from which a great portion of the mines under the estate could be worked.

The Ashby Canal passes twice through the estate, affording considerable frontage for wharves; and the Ashby and Nuneaton Railway also intersects it, offering convenient communication.

The extensive new colliery of Messrs. Checkland, now in course of construction, is near the estate, and by means of which also the mines could be worked. The coal has been proved on adjacent land on the south-west side of the Burton turnpike road, and on other land of the vendor on the east side, and the vendor is in possession of a section of a pit through the main coal on the north-east side.

Moderate terms of payment of the purchase money of the minerals by instalments, having regard to the existing lease, will be submitted at the time of sale to suit the convenience of the purchaser.

For further information, with printed particulars and lithographed plans, apply to the Auctioneers, Ashby de la Zouch; at the offices of Messrs. WIGHT and SON, Solicitors, Dudley (where copies of the sections above referred to may be seen), or to JAMES WHITEHOUSE, Esq., Mining Engineer, Barnt Tree Villa, near Dudley.

IN RE THE SOUTH LLANHARRAN COLLIERY COMPANY.

MESSRS. BROAD, PRITCHARD, AND WILTSHIRE beg to announce that this VALUABLE COLLIERY, together with all the PLANT and MACHINERY, which was offered for Sale, by Auction, at the Mart, Tokenhouse-yard, E.C., on the 12th of December, by order of the Liquidator, WAS NOT SOLD, and may now be treated for (with possession) by private contract.

Particulars, plans, and sections may be had at the Auctioneer's Offices, 7, Queen-street, London, E.C.

THE TAN-Y-RALLT (CARDIGANSHIRE) SILVER-LEAD MINING COMPANY

(LIMITED).

IN LIQUIDATION.

TO BE SOLD, BY PRIVATE CONTRACT, the MINE, PLANT, and MACHINERY of the above Company (Limited), situated in the parish of LLANFANGEL GENEWIGHY, in the county of CARDIGAN.

Particulars may be obtained from me as under, to whom applications for purchase will be received up to Saturday, December 30th instant.

JOHN KINGSTURDY, Liquidator.

10, Bush-lane, Cannon-street, E.C.

DICK AND STEVENSON, AIRDRIE.—TANK LOCOMOTIVES, 8 in. to 14 in. cylinders, always ready or in progress. Also, various sizes of WINDING and PUMPING ENGINES. ONE extra strong LOCO., 10 1/2 in. by 20 in., 15 tons, in working trim; can be in steam on rails at a day's notice. Price and specification on application.

ON SALE, TWO CORNISH BOILERS, 30 ft. by 7 ft. diameter. Two flues through each. Safe at 80 lbs. pressure working. Apply to HENRY PARKINSON, Foundry-street, Bolton.

ON SALE, ONE PAIR of 18 in. high-pressure HORIZONTAL ENGINES, for winding, fitted with slot link motion. First-class pair of engines. Apply to HENRY PARKINSON, Foundry-street, Bolton.

ON SALE, ONE PAIR of 15 in. HORIZONTAL WINDING ENGINES, with slot link motion. Will be sold cheap. Apply to HENRY PARKINSON, Foundry-street, Bolton.

ON SALE, ONE 25-horse power double cylinder PORTABLE ENGINE, fitted with slot link motion for winding. ONE 20-horse power double cylinder PORTABLE ENGINE. Will be sold cheap, and are in first-class order. Apply to HENRY PARKINSON, Foundry-street Boiler Works, Bolton, Lancashire.

ON SALE, ONE 8-horse power PORTABLE ENGINE, fitted up with winding drum; slot link motion; made by Clayton and Shuttleworth. Price £1-0. Apply to HENRY PARKINSON, Foundry-street, Bolton.

ON SALE, ONE PAIR of 25 inch. coupled HORIZONTAL WINDING ENGINES, with drums and brake gear. Also ONE PAIR of 28 in. ditto. Will be sold cheap. Apply to H. PARKINSON, Foundry-street, Bolton.

ON SALE, ONE strong well-built condensing BEAM ENGINE, by a first-class maker, equal to new; cylinder 36 in. bore, 5 ft. stroke. Can be seen standing, and will be sold cheap. ONE close-built self-contained condensing BEAM ENGINE, stands on independent bed on six columns; will deliver 4 ft. stroke. As good as new. Can be seen standing, and will be sold cheap. Apply to HENRY PARKINSON, Foundry-street, Bolton.

BOILERS ON SALE.—FOUR GALLOWAY'S PATENT BOILERS, 30 ft. by 7 ft., safe to work at 70 lbs. on the square inch. TWO BOILERS, 28 ft. by 7 ft., with two flues through. TWO BOILERS, 26 ft. by 7 ft., two flues through. ONE BOILER, 20 ft. by 7 ft., two flues through. ONE BOILER, 18 ft. by 8 ft., one flue through. Also several smaller sizes. Apply to HENRY PARKINSON, Foundry-street, Bolton.

ON SALE, ONE 16 horse power double cylinder PORTABLE ENGINE, for winding. ONE 12 horse power PORTABLE ENGINE. ONE 10 horse power PORTABLE ENGINE. ONE 8 horse power PORTABLE ENGINE. ONE 6 horse power PORTABLE ENGINE. Equal to new, and will be sold cheap. Apply to HENRY PARKINSON, Foundry-street, Bolton.

ON SALE, ONE PAIR of 25 in. horizontal WINDING ENGINES. ONE PAIR of 18 in. horizontal WINDING ENGINES. ONE PAIR of 16 in. horizontal WINDING ENGINES. ONE PAIR of 15 in. horizontal WINDING ENGINES. ONE PAIR of 12 in. horizontal WINDING ENGINES. ONE PAIR of 10 in. horizontal WINDING ENGINES. ONE PAIR of 7 in. horizontal WINDING ENGINES. The above engines are now ready for delivery, and fitted with winding drum and brake gear to each pair of engines. Apply to HENRY PARKINSON, Foundry-street, Bolton.

THE BIRMINGHAM WAGON COMPANY (LIMITED) MANUFACTURE RAILWAY WAGONS OF EVERY DESCRIPTION, for HIRE and SALE, by immediate or deferred payments. They have also wagons in hire capable of carrying 6, 8, and 10 tons, part of which are constructed specially for studding purposes. Wagons in working order maintained by contract. EDMUND BOWLER, Managing Director. WAGON WORKS, SMETHEWICK, BIRMINGHAM. Loans received on Debenture; particulars on application.

THE TAVISTOCK IRONWORKS, ENGINEWORKS

FOUNDRY, AND HAMMER MILLS,

TAVISTOCK, DEVON.

NICHOLLS MATHEWS, AND CO.,

ENGINEERS, BRASS AND IRON FOUNDERS,

BOILER MAKERS AND SMITHS.

MAKERS OF

CORNISH PUMPING, WINDING, AND STAMPING ENGINES; STEAM

CAPSTANS AND CRUSHERS; WATER-WHEELS; PUMP-WORK;

SHOVELS, AND HAMMERED IRON FORGINGS OF EVERY

DESCRIPTION.

Also of SPUR, MORTICE, MITRE, BEVEL, and other WHEELS, of any diameter up to 12 feet, made by Scott's Patent Moulding Machine, without the aid of patterns, and with an accuracy unattainable by any other means. MACHINERY or FOREIGN MINES carefully prepared. SECONDHAND MINING MACHINERY, in good condition, always on sale at moderate prices.

JOHN BEATSON, DERBY.

IRON AND STEEL RAILS, of all sections, from 12 to 82 lbs. per yard, new, defective, or second-hand. POINTS AND CROSSINGS, FISH PLATES, BOLTS, NUTS, CHAIRS, AND SPIKES.

LOCOMOTIVE ENGINES AND MACHINERY.

MALLEABLE AND PIG-IRON OF ALL KINDS.

Second Edition; Seventh Thousand; post free Threepence.

STOCK EXCHANGE SYNDICATES—

A GUIDE TO SMALL SPECULATORS.

Apply to—MESSRS. JOHN ABBOTT AND CO.,

4 AND

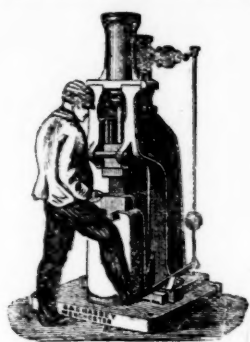
B. & S. MASSEY, OPENSHAW, MANCHESTER.

Prize Medals—Paris, 1867; Havre, 1868; Highland Society, 1870; Liverpool, 1871; Moscow, 1872; Vienna, 1873; Scientific Industry Society, 1875; Leeds, 1875; Paris, 1875; Manchester and Liverpool Society, 1876; U.S. Centennial, Philadelphia, 1876.

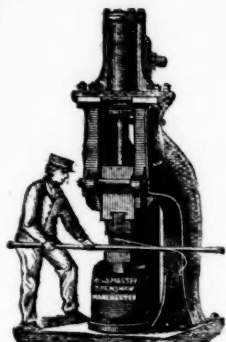
PATENTEES AND MAKERS OF DOUBLE AND SINGLE-ACTING

STEAM HAMMERS

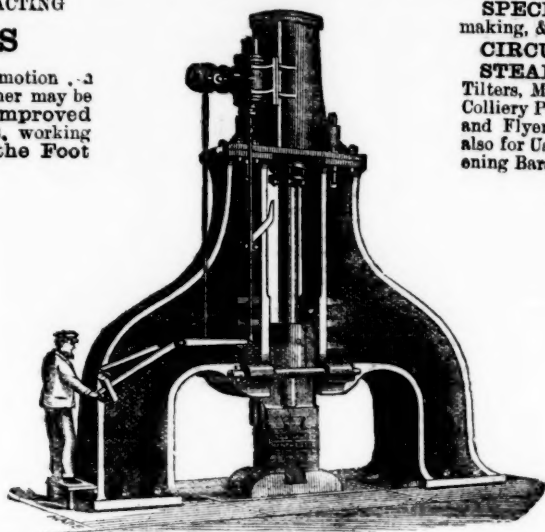
Of all sizes, from $\frac{1}{4}$ cwt. to 20 tons, with self-acting or hand motion, either case giving a perfectly DEAD BLOW, while the former may be worked by hand when desired. Large Hammers, with Improved Framing, in Cast or Wrought Iron. Small Hammers, working up to 500 blows per minute, in some cases being worked by the Foot of the Smith, and not requiring any separate Driver.



Small Hammer with Foot Motion.



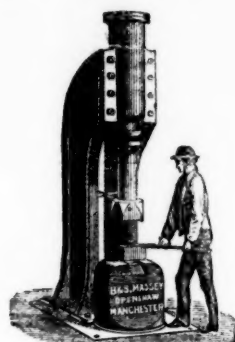
General Smithy Hammer.



Steam Hammer for Heavy Forging.



Special Steam Stamp.



General Smithy Hammer.

From 60 to 100 Steam Hammers and Steam Stamps may usually be seen in construction at the Works.

SPECIAL STEAM STAMPS, for Forging, Stamping, Punching, Bolt-making, &c.

CIRCULAR SAWS for Hot Iron.

STEAM HAMMERS for Engineers, Machinists, Shipbuilders, Steel Tilters, Millwrights, Copper-smiths, Railway Carriage and Wagon Builders, Colliery Proprietors, Ship Smiths, Bolt Makers, Cutlers, File Makers, Spindle and Flyer Makers, Spade Makers, Locomotive and other Wheel Makers, &c. also for Use in Repairing Smithies of Mills and Works of all kinds; for straightening Bars, bending Cranks, breaking Pig-iron, &c.

THE "Champion" Rock Borer,

For Tunnels, Mines, Quarries, HARBOUR WORKS, CUTTING BLOCKS OF GRANITE, &c.

STANDS POSITIVELY UNRIVALLED FOR

- | | |
|----------------|-------------------|
| 1.—EFFICIENCY. | 5.—ADJUSTABILITY. |
| 2.—ECONOMY. | 6.—PORTABILITY. |
| 3.—SIMPLICITY. | 7.—COMPACTNESS. |
| 4.—DURABILITY. | 8.—STRENGTH. |



Intending purchasers can satisfy themselves by personally inspecting "CHAMPION" Rock Borers at work in London, or where they are in actual operation, that the advantages claimed are not over-estimated.

AIR COMPRESSING MACHINERY

of the SIMPLEST and BEST CONSTRUCTION.

COMBINED AIR-COMPRESSORS

AND

WATER-PRESSURE ENGINES

Giving most excellent results.

ULLATHORNE AND CO.,

Mechanical and Consulting Engineers,

23, QUEEN VICTORIA STREET, LONDON, E.C.

GUIBAL VENTILATORS

FOR COLLIERIES, MINES, &c.

P. HAGGIE AND CO.,

MANUFACTURERS, GATESHEAD-ON-TYNE.

Sizes in hand and delivered, comprising all the RECENT IMPROVEMENTS in the Ventilators, and highly finished VARIABLE EXPANSIVE ENGINES, 16, 20, 21, 24, 30, 36, 40 feet, and upwards, in diameter.

DETAILED ESTIMATES ON APPLICATION.

ALSO,

GENERAL COLLIERY ENGINEERING,

HAULING AND WINDING ENGINES,

SAW MILL MACHINERY, &c.

AGENT:

MR. D. P. MORISON, M. AND C.E.,

No. 21, COLLINGWOOD STREET, NEWCASTLE-ON-TYNE; and ST. STEPHEN'S CHAMBERS, WESTMINSTER, LONDON.

JOHN AND EDWIN WRIGHT,

PATENTERS.

(ESTABLISHED 1770.)

MANUFACTURERS OF EVERY DESCRIPTION OF IMPROVED

PATENT FLAT AND ROUND WIRE ROPES

from the very best quality of charcoal iron and steel wire.

PATENT FLAT AND ROUND HEMP ROPES,

HIPS RIGGING, SIGNAL AND FENCING STRAND, LIGHTNING CONDUCTORS, STEAM PLOUGH ROPES (made from Webster and Horsfall's patent steel wire), HEMP, LAX, ENGINE YARN, COTTON WASTE, TARPULING, OIL SHEETS, BRATICE CLOTHS, &c.

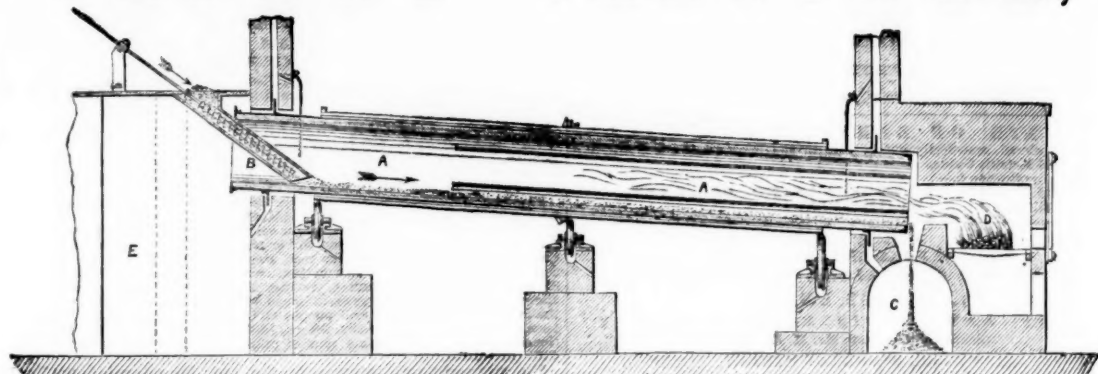
UNIVERSE WORKS, MILLWALL, POPLAR, LONDON.

UNIVERSE WORKS, GARRISON STREET, BIRMINGHAM.

CITY OFFICE, No. 5, LEADENHALL STREET, LONDON, E.

THE LONDON (Weekly Journal) represents the IRON and COAL TRADES OF FRANCE. Advertisements referring thereto, and subscriptions, 20s. per annum, post paid, received by the London Agents, HOWARD, CASPER and Co., 40, Finsbury Circus, E.C.

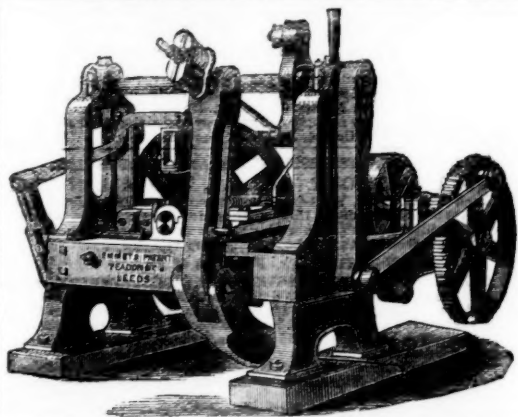
OXLAND AND HOCKING'S PATENT CALCINER,



For Roasting Ores containing Sulphur, Arsenic, and other Volatile Matters, have been supplied to some of the principal Mines in the United Kingdom and Abroad.

For particulars, apply to—

Dr. OXLAND, 8, PORTLAND SQUARE, PLYMOUTH; or to Mr. JOHN HOCKING, Jun., TREWIRGIE TERRACE, REDRUTH.



EMMET'S A1 PATENT BRICK MACHINE.

Massive; durable; cheap; takes little power, and gives PERFECT SATISFACTION.

This is the ONLY Machine which presses the Brick equally on BOTH sides, each plunger entering the mould plate $\frac{1}{8}$ in., and turning out 12,000 SQUARE, SOLID, PRESSED Bricks per day, READY AT ONCE FOR THE KILN.

SOLE MAKERS—

YEADON AND CO.,

CROWN POINT FOUNDRY, LEEDS.

Makers of EVERY DESCRIPTION of Colliery and Brick Yard Plant.

LONDON AGENTS—

HAUGHTON AND CO., No. 122, CANNON STREET, E.C.

CONTINENTAL AGENTS—

PLAMBECK AND DARKIN, 171, QUEEN VICTORIA ST., E.C.

Teams Patent Hemp and Wire Rope Works, GATESHEAD-ON-TYNE.

DIXON, CORBITT, AND SPENCER,

MANUFACTURERS of every description of ROUND and FLAT ROPES of any length for COLLIERY, RAILWAY, AGRICULTURAL, SHIPPING, and other purposes, and guaranteed of the highest standard of strength.

Best Selected Charcoal Iron, Best Crucible Cast Steel, and extra strong Improved Steel Round and Flat Wire Ropes; Compound-laid non-rotating Flexible Ropes, in Iron or Steel for small gear and sinking purposes; Best Selected Charcoal Iron Guide Ropes; Galvanised and Plain Ropes for capstans, crabs, suspension bridges, canal towing, &c.; Patent Steel Plough Ropes; Galvanised Signal and Fencing Strands; Copper Rope Lightning Conductors; Steel, Iron, and Copper Bash Cords; Picture Cords; Russian, Italian, and Manila Hemp Round and Flat Ropes; White and Tarred Hemp and Flax Spun Yarns; Round and Flat Rope Pulleys and Patent Springs for same; Galvanised Wire Rope for Ships' Standing Rigging; Russian, Italian, Manila, and Coal Cordage; Towlines, Warps, Service and other Lines for Shipping Purposes; Ships' Rigging fitted by experienced workmen.

D., C., and S. beg to call special attention to the advantages to be derived by adopting their EXTRA STRONG IMPROVED STEEL ROPES, for lifting heavy loads in deep mines, also in hauling from long distances; a considerable reduction is effected in weight, friction materially reduced, and an extra amount of work got out of the rope—a rope 8 lbs. per fathom being equal in strength to an iron rope 20 lbs. per fathom, or an ordinary steel rope 12 lbs. per fathom.

MINERS

PRICKERS AND STEMMERS

OF

MUNTZ'S METAL.

ACCORDING TO THE NEW MINES REGULATION ACT.

BEST KNOWN MATERIAL.

MUNTZ'S METAL COMPANY (LIMITED),

FRENCH WALLS,

NEAR BIRMINGHAM

SOLID DRAWN BRASS BOILER TUBES

FOR LOCOMOTIVE AND MARINE BOILERS,

EITHER

MUNTZ'S OR GREEN'S PROCESS

MUNTZ'S METAL COMPANY (LIMITED),

FRENCH WALLS,

NEAR BIRMINGHAM.

NOBEL'S DYNAMITE

Is the MOST ECONOMICAL and POWERFUL EXPLOSIVE for every kind of MINING and QUARRYING OPERATIONS; for blasting in hard or soft, wet or dry ROCKS; for clearing land of TREE ROOTS and BOULDER STONES; for rending massive BLOCKS of METAL; for SUBAQUEOUS and TORPEDO purposes; and for recovering or clearing away of WRECKS, &c.

ITS SAFETY is evidenced by the total ABSENCE OF ACCIDENTS in transit and storage; it is insensible to heavy shocks, its GIANT POWER being only fully developed when fired with a powerful percussion detonator, and hence its great safety.

As a SUBSTITUTE FOR GUNPOWDER its advantages are the GREAT SAVING OF LABOUR, rapidity and INCREASE OF WORK done, FEWER and smaller BORE-HOLES required, greater depth blasted, safety in use NO DANGER FROM TAMPING, absence of smoke, unaffected by damp, &c.

For information, apply to the—

BRITISH DYNAMITE COMPANY (LIMITED), GLASGOW;
OR AT THE

London Export Office, 85, GRACECHURCH STREET, LONDON, E.C.

LITHOFRAC TEUR.

THE BEST EXPLOSIVE KNOWN FOR EVERY KIND OF QUARRYING, MINING, TUNNELLING, AND SUBAQUEOUS OPERATIONS.

UNRIVALLED FOR STRENGTH, SAFETY, AND FREEDOM FROM GASES.

EXPORT ORDERS DELIVERED FREE ON BOARD IN THE THAMES. PAMPHLETS ON APPLICATION.

Responsible Agents for the Country Districts can apply to—

KREBS BROTHERS AND CO., Sole Manufacturers and Patentees,
22, BASINGHALL STREET, LONDON, E.C.

WET GUN COTTON

Is perfectly unflammable and insensible to the heaviest blows. It cannot be fired in a bore-hole, except by using a special primer and detonator. Its strength is superior, weight for weight, to every known explosive, and it gives off no injurious taste or fumes.

Sold in packets ready for use at 1s. 6d. per lb.

PRIMERS AND DETONATORS SOLD SEPARATELY.

For further information apply to—

THE PATENT SAFETY GUN COTTON COMPANY, LIMITED,
STOWMARKET,

SOLE MANUFACTURERS OF ABEL'S GUN COTTON.

LONDON EXPORT OFFICE, 52, QUEEN VICTORIA STREET.
AGENTS WANTED.

THE DARLINGTON ROCK BORER.

No VALVE—BLOW obtained by the movement of the PISTON.

IN USE IN FRANCE, GERMANY, SPAIN, AND ELSEWHERE.

Rock Borers, Air Compressors, and Electric Blasting Apparatus.

Sole Agents and Manufacturers for France.—The Blanz
Mining Company,

WHERE BORERS MAY BE SEEN IN OPERATION.

For letter of introduction, particulars, &c., apply to—

JOHN DARLINGTON,

2, COLEMAN STREET BUILDINGS, MOORGATE STREET, LONDON.

THE TUCKINGMILL FOUNDRY COMPANY

(TUCKINGMILL FOUNDRY AND ROSEWORTHY HAMMER MILLS),

CAMBORNE, CORNWALL,

Engineers, Iron and Brass Founders, &c.,

MAKERS OF EVERY DESCRIPTION OF

MINING MACHINERY, SHOVELS, GEARWORK,
PUMPING, WINDING, AND STAMPING ENGINES.

ALSO OF

BLAKE'S STONE BREAKERS.

SOLE MAKERS OF

BORLASE'S PATENT ORE-DRESSING MACHINES AND PULVERISERS.

ESTIMATES GIVEN UPON INDENTS AND SPECIFICATIONS.

ILLUSTRATED CATALOGUES POST FREE ON APPLICATION.

LONDON OFFICE: 85, GRACECHURCH STREET, E.C.

MANCHESTER WIRE WORK.

NEAR VICTORIA STATION, MANCHESTER.

(ESTABLISHED 1790).

JOHN STANIAR AND CO.,

Manufacturers by STEAM POWER of all kinds of Wire Web, EXTRA TREBLE STRONG for

LEAD AND COPPER MINES.

Jigger Bottoms and Cylinder Covers woven ANY WIDTH, in Iron, Steel, Brass, or Copper.

EXTRA STRONG PERFORATED ZINC AND COPPER RIDDLES AND SIEVES.

Shipping Orders Executed with the Greatest Dispatch.

THE NEWCASTLE DAILY CHRONICLE

(ESTABLISHED 1784.)

THE DAILY CHRONICLE AND NORTHERN COUNTIES ADVERTISER
Offices, Westgate-road, Newcastle-upon-Tyne; 80, Howard street North
Shields: 195 High-street, Sunderland.

Just published, Free Edition.
GUIDE TO HEALTH; OR, ADVICE AND INSTRUCTIONS FOR
THE CURE OF NERVOUS DEBILITY.—A New Medical Work on the
Treatment of Local Debility, Consumption, Loss of Memory, Physical Depression,
Indigestion, and all diseases resulting from loss of nerve power. Illustrated with
cases and testimonials. Sent free for two stamps.—Dr. SMITH will, for the benefit
of country patients, on receiving a description of their case, send a confidential
letter of advice.
Address, Dr. H. SMITH, 8, Buxton-crescent London, W.C.

ONE MILLION STERLING

Has been paid as

COMPENSATION FOR DEATH AND INJURIES

Caused by

ACCIDENTS OF ALL KINDS,

By the

RAILWAY PASSENGERS' ASSURANCE COMPANY.

HON. A. KINNAIRD, M.P., Chairman.

PAID-UP CAPITAL AND RESERVE FUND, £150,000.

ANNUAL INCOME, £200,000.

Bonus allowed to Insurers of Five Years' standing

Apply to the Clerks at the Railway Stations, the Local Agents, or—

84, CORNHILL, AND 10, REGENT STREET, LONDON.

WILLIAM J. VIAN, Secretary.

"Kainotomon" Rock Drill

SELECTED BY THE

BRITISH, PRUSSIAN, & SAXON
GOVERNMENTS.



SUPERIOR

AIR-COMPRESSORS,
COAL-CUTTERS,
PUMPS,

AND ALL

MINING MACHINERY.

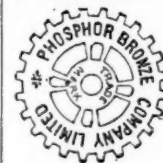
Secondhand ROCK DRILLS, of BRYDON AND
DAVIDSON'S make £25 each, new £32.

T. A. WARRINGTON,
30, King-street, Cheapside,
LONDON, E.C.

THE

PHOSPHOR BRONZE

COMPANY (LIMITED).



139, CANNON STREET, E.C.
LONDON.

Alloy, No. II., for pinions, ornamental castings, steam fittings, &c.	£120 per ton.
" No. IV., for pinions, pumps, valves, linings, cylinders, &c.	130 "
" No. VI. (must be cast in chill) for bolts, &c.	140 "
" This alloy has very great tensile strength ...	140 "
" No. VII., for hydraulic pumps, valves, and plungers, piston rings, bushes and bearings, for steel shafts	140 "
" No. XI., special phosphor-bronze bearing metal, wearing five times as long as gun metal	112 "

The prices of castings vary according to the pattern, the quantity required, and the alloy used.

WIRE ROPES, TUBES OF ALL DESCRIPTIONS, &c.

MAPS OF THE MINES, AND OF UTAH TERRITORY.

FROISETH'S NEW AND REVISED MAP FOR 1875.—

Size 40 by 56 inches, scale 8 miles to the inch. Handsomely engraved, coloured in counties, showing the Towns, Settlements, Rivers, Lakes, Railroads, Mining Districts, &c., throughout the Territory, and all the Government Surveys to date. Mounted on cloth, £2; half-mounted, £1 12s.; pocket form, £1.

Also, GENERAL MINING MAP OF UTAH, showing twenty-eight of the principal Mining Districts adjacent to Salt Lake City, and location of the most prominent mines. Price, pocket form, 6s.

Also, NEW MAP OF LITTLE AND BIG COTTONWOOD MINING DISTRICTS, showing the location of over Four Hundred Mines and Tunnel Sites, together with the Mines Surveyed for United States Patent. Price, sheets, 6s.; pocket form, 8s.

For sale, and supplied by—

TRUBNER and Co., 57 and 59, Ludgate Hill, London; or
B. A. M. FROISETH, Salt Lake City, Utah, U.S.

Now ready, price 3s., by post 3s. 3d., Sixth Edition: Twentieth Thousand Copies much improved, and enlarged to nearly 300 pages.

HOPKINSON'S CONVERSATIONS ON MINES, between Father and Son. The additions to the work are near 80 pages of useful information, principally questions and answers, with a view to assist applicants intending to pass an examination as mine managers, together with tables, rules of measurement, and other information on the moving and propelling power of ventilation, a subject which has caused so much controversy.

The following few testimonials, out of hundreds in Mr. Hopkinson's possession speak to the value of the work:—
"The book cannot fail to be well received by all connected with collieries."—*Mining Journal*.

"Its contents are really valuable to the miners of this country."—*Miners Conference*.

"Such a work, well understood by miners, would do more to prevent colliery accidents than an army of inspectors."—*Colliery Guardian*.

London: MINING JOURNAL Office, 26, Fleet-street; and to be had of all book-sellers.

THE IRON AND COAL TRADES' REVIEW.

ROYAL EXCHANGE, MIDDLEBOROUGH.

The IRON AND COAL TRADES' REVIEW is extensively circulated amongst the Iron Producers, Manufacturers, and Consumers, Coalowners, &c., in all the iron and coal districts. It is, therefore, one of the leading organs for advertising every description of Iron Manufactures, Machinery, New Inventions, and all matters relating to the Iron, Coal, Hardware, Engineering, and Metal Trades in general.

Offices of the Review: London: 7, Westminster Chambers, S.W.; Middleborough-on-Tees: Royal Exchange; Newcastle-on-Tyne: 50, Grey-street.

PARR'S LIFE PILLS

MAY be used with confidence by persons suffering from headache, indigestion, pain under the shoulder, bilious ailments, scorbutic complaints, affections of the nervous system, lowness of spirits, want of sleep, &c. Sold by all chemists.

